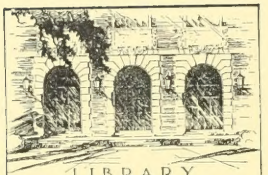

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JOHN JAMES AUDUBON EDITION
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PASSENGER PIGEON.
(Ectopistes migratorius Linn).

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VOL. II—BIRDS

AMERICAN AUDUBON ASSOCIATION
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Birds

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HOW TO ATTRACT BIRDS

By Joseph H. Dodson

A Director of the Illinois Audubon Society

I began my work for native birds when I was still a boy. It has been 20 years since I built my first little bird house and experienced a keen thrill of pleasure when a young pair of wrens came to this house and made their home in my garden. During those first years there were many disappointments and many experiments. I discovered to my surprise that birds are very particular about their houses and that you can win them to you only by satisfying all their little whims and prejudices. After a while you will find that these little whims and prejudices of the birds are in reality generally based upon very good reasons. For example, they are particular about the size of the opening. I discovered that this is largely due to their fear of cats or larger birds. The number of holes in the house is another point on which the birds have very decided ideas. I found that this in reality is a matter of ventilation and that what the birds desire is a house well ventilated but so arranged that there shall be no strong draft over the nest. In other words, the birds are a great deal wiser than we are.

It really took me five years to discover what I consider the ideal house for wrens, the ideal house for martins, and the ideal house for bluebirds, for at the same time I was

learning how to place the houses and how to give further service to the birds by arranging sheltered feeding shelves, food stations, and bird baths.

Here are a few general rules which should be observed when you make or set out a bird house:

First. — All bird houses should be at least a little weather-worn, for all birds look with suspicion upon newness and abhor fresh paint. Yet the house should be well painted so it will last, for after being once occupied the occupants will return to it every year and they will expect the same house, and if anything should happen to the house or if it were substituted by a new one you would most surely lose your birds.

Second. — The house should be so placed that there will be as little danger as possible from that great enemy of all birds — the domestic cat. The best protection against these bird fiends, as I call them, is a wire guard placed around the tree, pole, or under the selected nesting site.

Third. — The openings in the houses should be of the following dimensions:

Martin houses, 2x2 inches or 2x2½ inches.
Wren houses, 15/16 of an inch.
Bluebird houses, 1½ inches.
Flicker houses, 2¾ inches.
Tree Swallow houses, 1½ inches.
Great Crested Flycatcher, 1½ inches.
Chickadee and Nuthatch, 1 inch.

Fourth. — Provide if possible one bird bath in a sheltered place, preferably in some spot where you can have the great

pleasure of watching the birds bathe and at the same time protect them from the danger of cats.

Fifth. — Proper height for houses: The purple martins, which live in great families running from 20 to 100, desire a house not less than 16 feet in the air. It may be higher, but must not be lower. I have a house for martins which has 26 rooms and stands on a pole 16 feet high. There are more than 100 martins in this house every summer and the same birds come back to me year after year. I know this because I band a great many of them. The proper height for the wren house, which should be hung from a tree or projection from some building, is about 10 to 12 feet. The proper height for a bluebird house, which should be placed on a pole, is 12 to 16 feet.

In choosing the kind of house you are going to put out you should consider first the birds which usually come to your neighborhood every year. Wrens, bluebirds, and purple martins are generally found in most neighborhoods and these birds are very easily won to suitable houses. Robins can be attracted by a sort of shelter shelf, in which to build their nests. Chickadees, flickers, and tree swallows may all be attracted by the houses particularly adapted to their needs. The purple martin usually arrives in the central states about the end of April. Martins, as you know, travel and live in great flocks, sometimes as many as five hundred birds living in one house. This is one of the most sociable and delightful American birds, because you can win so many of them to live together. The experience of a Chicago bird lover is interesting and typical of many others in attracting purple martins. He was pressed for

time and put one of my martin houses, recently purchased, upon the roof of a shed, intending to place the house upon a pole later on. That evening he returned to his house through an April storm of rain and sleet and was astonished to behold a flock of martins sitting on the telephone wires, apparently attracted by the new house which still lay upon the shed.

Several passing teamsters noted the pitiable condition of the freezing birds and offered to help raise the house for them. Tools were quickly brought and in a few minutes the united efforts of the kindly workmen had swung into place the heavy pole with its handsome bird house on top. While the last screw was being put into place, the birds, seeming to know that the house was for them, darted eagerly into the dripping shelter. They were quite fearless of the men on the roof of the shed and their twitterings of contentment could be distinctly heard. The house has been inhabited each year ever since.

I make all my bird houses of wood because I have found in long experience that the birds prefer this material. I have, however, made some wren houses from tin cans and they have been particularly successful, although they are apt to get too hot in the summertime and should always be hung in semi-shade. I have also made a number of houses from long-necked gourds. These houses are better than the tin ones, but neither kind is as good as those well made of seasoned wood. I use oak and clear white pine with cypress shingles, and on most of my houses provide a copper top for durability as well as for beauty.

The martin and bluebird houses, as I have explained,

should be erected on a pole, although I have won bluebirds by a hanging house as well as by one on a pole.

Probably most of us are drawn to the good work of protecting native birds because there is such a keen pleasure in watching the life of these birds. At the same time it is well that we should understand how important this protection of the birds is to our future welfare. For a good many years after I began my work for the birds I did not really appreciate how important a factor these birds are in protecting the fruits and grains of this country. I now know by the work of scientific authorities that the destructive work of insects in the United States alone costs the country more than $800,000,000 every year. The scientists say that the codling moth bites $12,000,000 a year right out of our apple crop alone, and this little insect would take several times as big a bite but for the fact that we spend $8,000,000 a year in spraying this one particular pest. Remembering these big figures and the fact that they come from men who know, we will have to look upon the native birds of America as great benefactors and necessary aids. The year-book of the department of agriculture states positively that "by far the most effective aids to man in controlling the codling moth are our native birds."

Scientists say that if the natural increase of the gypsy moth were unchecked it would result in the complete defoliation of all the trees in this country inside of eight years. The birds are our natural protectors, and by ignorance and thoughtlessness we have allowed a great many of them to be driven away from our gardens. We have not given them the encouragement and protection their usefulness deserves.

The birds not only bring beauty, charm, and cheer into our lives — they protect the very food upon which we live. It is then every man's duty to do something to help these delightful little friends of mankind.

Don't imagine because you live in the city or busy town that you cannot win native birds around your home. There are birds near you and you will be surprised how readily they discover an attractive house so placed that they can with safety take it as their own and while I myself live in a suburb of Chicago, I am really in the city, as my home is just over the line and as many as 1,500 autos an hour pass my house at certain hours of the day. I have only one acre of ground, yet I have 54 bird houses, numerous shelters, food devices, baths, etc., in this garden and have from 300 to 500 native birds living on my property all the time every summer. I have from 50 to 75 birds who stay with me all the year around. Birds do not freeze, as many people suppose — they suffer and die from hunger. If they could get something to eat they would stand any cold in the winter, as their little hearts beat just twice as fast as ours. By providing them with shelter and food devices I am enabled to keep them with me the year around.

There is another most important matter with reference to attracting birds — that is, the planting of the right kind of trees and shrubs. One can just as well plant species which will furnish a continuous supply of food. They are just as hardy and really more beautiful than other shrubs, as they have a double beauty — first the bloom, and then the berry, which the birds eat and thrive on.

In addition to the great host of cultivated fruits, trees,

shrubs, and plants, which are found more or less in every residential yard, we have the native wild forms of the same, which are largely used in landscape work, because of their ornamental berries. Our present study is not for pleasing effects to the eye of man, but what attracts and feeds the birds.

We naturally are first reminded of the wild crab and plum and the two forms of wild cherry trees with the numerous family of bush-cherry like the chokeberry, sand cherry, and the American and European bird cherry. The great variety of thorn have representatives in many sizes of fruit and different periods of blooming, but they all flag the birds when in fruit.

The mulberry trees fruit first and are always located by the birds, who hold daily receptions in their branches while the fruit lasts. The American and European juneberry, which is called shad-berry in the East, as it blooms when the shad run in the Delaware River, is a tree with berries high out of the reach of those in search of blueberries, to which it is quite similar in appearance and taste.

The brilliant festoons of all the barberries are an easy mark for the birds. No one loves to see the red, black, or white currants carried off by these winged visitors, but do not begrudge them at any rate the ornamental forms of the currant, such as the Golden Flowering, Gordon's Red Flowering and the Wild Black, whose fruit, though not equal to the cultivated, easily appease the birds' not over fastidious taste.

The high bush cranberry and for that matter all that family known as the viburnums, such as the arrow-wood, nanny-

berry, wayfaring tree, and the glossy leaved, all run a lunch counter for the birds in the fall.

We have pretty well covered the lines suggested by the edible fruits, but we have still the stately hackberry tree and vines like the bittersweet, woodbine, and even poison ivy, from which the druggist makes a remedy for rheumatism for man. A few matrimony vines must naturally be associated with every lover's nook, and all single flowering roses, like the Sweet Brier and Rugosas, produce very showy red or black "hips."

The Indians fancied the strawberry tree and called it the "Wahoo," and the Japanese form is considered the most valuable shrub grown. The oleaster or wild olive, with its silver foliage and attractive fruit, is also in demand. The buffalo berry and sea buckthorn are closely allied to the olive.

Any elderberry that does not get robbed of its flowers to make tea of, will later be found loaded with berries, and there are also those with cut leaves, and a golden leaved variety.

Many shrubs are prized for their growing well in the shade. For instance, the dogwoods, honeysuckles, and the buckthorns, all of which have a numerous family varying in color of flower and fruit and time of blooming. When a bird hedge is wanted, there are three forms of privet, the Amur, growing like a candle-flame, the Ibota, which spreads more, and still the Prostrate, which is three times as wide as high.

Among the so-called trimmers in shrubbery bushes of low habit which are used in large quantities in the foreground

of shrubbery belts, the snowberry, wolfberry, and the coralberry or Indian currant are largely used.

For a pleasing autumn effect the highly colored sumach, both smooth and staghorn, with their cut-leaved forms, are used, but their fruit are very palatable to the songsters.

Shall we close our list by referring to the "Devil's Walking Stick," Aralia Spinosa, which carries on high a mass of flowers which later become very ornamental in berry? Its spiny stem gives cause for its name.

Because of the prodigal supply during the summer, providentially many berries like the cranberry and the barberries are persistent and hang on and become a base of supply for the birds who remain over most of the winter.

The above list gives only the favorite varieties of the birds that are hardy in our northern states and are not expensive or difficult to get from any reliable nurseryman.

One of the most important things to remember in winning birds is that they must be given protection against their enemies — first, the domestic cat; second, the English sparrow.

The truths that I have to tell will hurt many of you who care for cats. Let me, then, begin by saying that I once loved cats myself; and understand that I do not advocate the wholesale destruction of cats. I believe that cats should be licensed and that their owners should be made responsible for their comfort and safe keeping; there is no humanity in allowing great numbers of deserted stray cats to wander about, half starved, half wild, hunters of birds.

Cats destroy millions of native birds in this country every year. Well known authorities agree that cats kill more birds than are killed by all other animals combined. Native birds

are absolutely necessary to us as destroyers of insect life. A yellow throated warbler will consume 10,000 tree lice in one day; a scarlet tanager has been watched closely and seen to devour gypsy moths at the rate of 35 a minute for 18 minutes at a time. I found 2,000 mosquitoes and many house flies, beetles, and other insects in the stomach of one purple martin which was killed on my place. Men who have given their lives to the study of this subject claim that we could not live if it were not for the birds — the insects would destroy vegetation. Insects now cost this country — by their destruction of fruit and grains — between $400,000,000 and $800,000,000 a year.

And cats are allowed to prey upon our greatest defenders — native birds. Our sentimental blindness favoring the cat is in reality multiplying insect life beyond the power of our calculation. By sparing the cat we are murdering millions of birds every year and giving life to hordes of insects.

It is bad to lose your birds by the secret hunting trips of your own cat. It is even worse, as many of us have discovered, to lose birds by the energy of our neighbor's cats.

Birds and cats cannot live together. The birds are frightened by the mere presence of a cat. They prefer to have their houses placed far away from the home or haunt of a cat. And even if the birds do come to live at a place where a cat is kept those birds are in constant danger of death.

If only you will give the birds a chance — have them about you one summer — I know you will gladly let the cat go, and will never regret it. I have used, and have let my friends use, a cat trap.

This trap is baited and set back in the shrubbery out of

sight and no one is the wiser for it, and no hard feelings from my neighbors, who have been notified to keep their cats out of my grounds or take the consequences. These bird fiends which I caught — more than a score altogether — I have buried under my rose bushes, grape vines, and fruit trees, and such beautiful roses and lucious fruits, their equal cannot be found anywhere in this neighborhood.

I was forced to do this by the cats which came secretly hunting my birds. Imagine my feelings when on some bright morning of early summer I hear a great twittering among my wrens, and looking closely about, discover feathers, a few drops of blood, and the footprints of a cat! I am not cruel. I have lived among my birds too long for that. But I could not be true to them if I did not protect them from the stealthy hunter — well fed from my neighbor's table — the cat that kills for the inborn lust of killing.

If you really love birds you will not let the cats get them — either your own cat or those from other houses.

Probably if you have a cat and if you love birds, too, you are like many people I know — you think I must be exaggerating the evil ways of Pussy. I challenge you to watch the cat and the birds. Leave the cat where birds are near and — *secretly* — watch him. It may cost the life of a bird, but it is better that you should know the truth. And after you have watched a cat's deliberate cruelty in killing a bird you will not be so fond of the cat.

There are a few cats — very few — which do not hunt birds. Most of these are foreign species — Angoras and Persians, for example — or city cats which, after several generations of closely confined lives, have lost the instinct to kill

birds. I am thoroughly confident that a little country life revives this instinct.

Now regarding the English sparrow; he is noisy, dirty, filthy, and quarrelsome, and fights every one of our song birds. Twenty sparrows came against my first three martins, and if it had not been for my assistance, and the arrangement of my house, I certainly would have lost them. It is a fact that the sparrow will carry lice from one chicken yard to another, and chicken lice live and grow fat on the sparrow. The sparrow will pick up a feather in the yard to aid in building its nest and as many as 180 chicken lice have been found on one feather.

The Michigan University has, after a long and thorough investigation, decided that the sparrow carries hog cholera from one farm to another.

Our government not only classes the sparrow as a pest, but issues a pamphlet entitled, *The English Sparrow as a Pest and How to Destroy It.*

Help wipe out these pests, the English sparrow and the alley cat, and provide our feathered friends with proper shelter, food and water, and you will have about your home a delightful chorus of bluebirds, wrens, purple martins, flycatchers, tree swallows, chickadees, nuthatches, and all the other native song birds.

SAND-HILL CRANE.
⅛ Life-size.

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CHAPTER VII

MARSH BIRDS

THE Crane family comprises eighteen species of large birds, of which three are North American. They are omnivorous feeders, eating frogs, mice, snakes, insects, and some vegetable food found about marshes and plains. They migrate in flocks, but at other times are more solitary. Because of large size and few eggs laid, and persistent hunting, they are rapidly decreasing in numbers.

Fifteen species of Rails, Gallinules, and Coots inhabit North America. Rails and gallinules are not strictly gregarious. Coots, however, are found in flocks. Rails seek safety by running and secreting themselves, flying only when pressed when flight is short, as they quickly drop back to cover; yet in migration their flight is strong. Gallinules are strictly marsh birds; coots are aquatic, resembling ducks, but are distinguished by their white bill and lobed feet.

Phalaropes are found in the northern part of the Northern Hemisphere. They are peculiar in that the female is the larger and more brightly colored; the male does the wooing, constructs the nest, incubates the eggs, and cares for the young. Although marsh birds, they are web-footed and swim with the ease of a duck.

Avocets are usually found in flocks, feeding in shallow water. The bills are sensitive, enabling the bird to select its food even if water is muddy, as it swings the bill from

side to side. Although it has long legs and bill, it possesses webbed feet and swims with ease.

SANDHILL CRANE

The Sandhill Crane ranges from Florida and Georgia northward through the Mississippi Valley to Manitoba, wintering in the Gulf States.

In America the cranes are threatened with extinction. Their conspicuous size and the fact that they are less prolific than most of our game birds account for the scarcity of this great wader. The sandhill crane is local in its breeding range. A number remain in the almost inaccessible swamps of Florida to nest; in all other states of the Union the bird is of rare occurrence, except as a migrant. One or two pairs have managed to run the gauntlet of the gunner and still retire to open marshes along the Kankakee River in northern Indiana. A few pairs spend the summer in remote sections of Minnesota and the Dakotas. Of late years, however, northwest Canada has afforded more places of refuge for the sandhill crane and its relatives, the whooping and little brown cranes.

Cranes are less aquatic than other wading birds. They feed largely upon dry ground, hence their food is often obtainable in cultivated sections, where the bird would no doubt thrive were it assured immunity by man, its worst enemy. The flesh of the sandhill crane is greatly esteemed among epicures, as it is not rank, like that of most large wading birds, due to difference in diet.

Their nest is a huge mass of grass or hay, arranged

KING RAIL.
(Rallus elegans.)

NEST OF THE KING RAIL
(Rallus elegans).

often in shallow water, but built so high as not to interfere with incubation. Only two buffy brown, blotched eggs are laid.

In April and May, during the mating and nesting season, the cranes give vent to their feelings of passion in a most hilarious manner. The males indulge in performances not unlike an Indian war dance, flapping the wings and jumping into the air, alternately landing on first one foot and then the other. During the excitement the females participate and the show continues until the birds cease from utter exhaustion. They also have a soaring, circling, croaking flight, at a great elevation. So loud is this croak that it may be heard after the birds have passed from sight.

KING RAIL

The King Rail, or Marsh Hen, breeds from northern Missouri to southern Connecticut, strays farther north, wintering in Virginia and Kentucky, south.

This largest of fresh-water rails inhabits the reedy margins of bayous, ponds, and inland marshes. East, south, and west of the Great Lakes region it is replaced by various forms of the clapper rail. The male and female are similar in plumage, while the young are covered with jet black down. The bodies of the rails are compressed, enabling the owner readily to pass through tangled vegetation, for which the feet and legs are remarkably well adapted, as with widespread toes they traverse the bogs and impenetrable swamps and quagmires with an unequaled agility, taking wing as the last resort.

Rails are less aquatic than coots or gallinules, and, though not gregarious, are seldom found in isolated pairs. Frequently several varieties of rail occupy their respective nests within a few yards of each other, and, again, all three species will deposit their eggs in a single nest, which is usually that of the king rail, the largest of the genera.

No one should be surprised at the antics of this bird. A neighbor discovered one in the front room, after leaving the door ajar one morning. King rails have been observed about the barnyard in company with the poultry. On several moonlight nights, between the hours of eight and ten, in May and June, I have heard and seen this droll-looking bird strolling about the streets of Chicago, perhaps one-half mile distant from the nearest marsh. It ventures upon the sidewalk and poses under the light of a street lamp, and suddenly becomes hilarious, calling, cackling, and creaking, its hoarse voice breaking the silence of the calm spring atmosphere, and then he vanishes as if by magic.

Ten eggs in the writer's collection were taken June 10, 1908, at Worth, Cook County, Illinois. The grass nest was placed at the base of a clump of grass, the top of which was naturally woven so as to form a canopy over the eggs. The nests are usually placed in shallow water, but this particular nest was on dry land close to a pond.

THE CLAPPER RAIL*

This bird, sometimes called the salt-water marsh hen, is found in great abundance in the salt marshes of the Atlantic coast from New Jersey southward. It breeds in profusion

CLAPPER RAIL.

in the marshes from the Carolinas to Florida, and has lately been found breeding on the coast of Louisiana, on the Gulf of Mexico. The clapper rail arrives on the southeastern coast of New Jersey about the last of April, its presence being made known by harsh cries at early dawn and at sunset. Nest-building is commenced in the latter part of May, and by the first of June the full complement of eggs is laid, ranging, says Davie, from six to nine or ten in number, thirteen being the probable limit. Farther south the bird is known to lay as many as fifteen. On Cobb's Island, Virginia, the clapper breeds in great numbers, carefully concealing the nest in high grass. The color of the eggs is pale buffy-yellow, dotted and spotted with reddish-brown and pale lilac, with an average size of 1.72 x 1.20, but there is a great variation in this respect in a large series.

At the nesting season the rails are the noisiest of birds; their long, rolling cry is taken up and repeated by each member of the community. The thin bodies of the birds often measure no more than an inch and a quarter through the breast. "As thin as a rail" is a well-founded, illustrative expression.

The rail can swim fairly well, but not fast. Its wings are short but useful, and it is so swift-footed that dogs chase it in vain.

THE VIRGINIA RAIL*

This miniature of king rail is found throughout the whole of temperate North America, as far as the British provinces, south to Guatemala and Cuba, and winters almost to the northern limit of its range. Other names

of the species are: Lesser clapper rail, little red rail, and fresh-water mud hen. The male and female are like small king rails, are streaked with dark brown and yellowish-olive above, have reddish-chestnut wing coverts, are plain brown on top of head and back of neck, have a white eyebrow, white throat, breast and sides bright rufous; the flanks, wing linings and under tail covers are broadly barred with dark brown and white; eyes red.

The name of this rail is not as appropriate today as it was when Virginia included nearly all of the territory east of the Mississippi. It is not a local bird, but nests from New York, Ohio, and Illinois northward. Short of wing, with a feeble, fluttering flight when flushed from the marsh, into which it quickly drops again, as if incapable of going farther, it is said this small bird can nevertheless migrate immense distances. One small straggler from a flock going southward, according to Neltje Blanchan, fell exhausted on the deck of a vessel off the Long Island coast, nearly a hundred miles at sea.

The rail frequents marshes and boggy swamps. The nest is built in a tuft of weeds or grasses close to the water, is compact, and slightly hollowed. The eggs are cream or buff, sparsely spotted with reddish-brown and obscure lilac, from 1.20 to 1.28 inches long to .90 to .93 broad. The number in a set varies from six to twelve. The eggs are hatched in June.

The Virginia rail is almost exclusively a fresh-water bird. It is not averse to salt water, but even near the sea it is likely to find out those spots in the bay where fresh-water springs bubble up rather than the brackish.

SORA RAIL

SORA RAIL

The Carolina, or Sora, Rail is the most plentiful of the family inhabiting at large the marshes and swamps of the East and Middle West through United States and Canada to Hudson Bay, wintering from the Gulf States to northern South America. West of Missouri, Iowa, and Dakota they diminish in numbers and occur erratically. In general structure and appearance the sora is very much like the gallinule. The bill is stout, the toes extremely long, and, though not webbed or lobed, the birds swim readily. The note is a high, rolling whinny, uttered in the ascending scale, which note is taken up by other birds in the marsh and carried for miles.

They frequently inhabit more inaccessible swamps and marshes than the other rails, though the sora is less timid. They fly awkwardly, with dangling leg, over the marsh, soon dropping into cover. Frequently a sora permits capture on foot rather than expose itself to a gunner by attempting flight. These birds, like the marsh wrens which inhabit the same cover, construct sham nests. They are sociable creatures, as two females sometimes deposit their eggs in the same nest.

In the Great Lakes region this bird arrives about the middle of April, and the duties of incubation commence as soon as the first egg is laid. The nests are loosely constructed of bulrushes and grass, well concealed in a clump of rank vegetation. Like the gallinule, the birds have a habit of constructing a little path or runway leading from the nest to the water's edge.

YELLOW RAIL

The Yellow Rail inhabits both eastern and western North America from the Atlantic to the Pacific, ranging north to Hudson Bay and south in winter to the Gulf of Mexico. None of our other rails has a more extensive range. Comparatively little is known of this species because of its retiring habits and small size. They occur in many localities where their presence is not suspected. It is almost impossible to flush the little birds, and unless one is acquainted with their haunts or can hunt them with a good bird dog, little opportunity is afforded the observer to form an acquaintance with it. Grassy tracts along coulees and prairie marshes are the haunts of the yellow crake, which avoids cattails and sluggish water more than do the other rails.

One observer was fortunate in discovering a little colony of these birds in North Dakota, and by diligent watching located several pairs and ultimately discovered their nests, which were concealed in thick clumps of grass in open, marshy places. Until these nests were located the eggs of the yellow rail were practically unknown to science. The six or more eggs are among the most beautiful found in North America; the background is a rich cream color, having a cluster of minute purple and brown specks about the large end. The nest is a loosely constructed affair of grass and weed stems, placed upon the ground within the protecting shadows of bunches of sedges or reeds, often being placed in a tussock of grasses surrounded by water.

YELLOW RAIL.
About Life-size.

PURPLE GALLINULE

PURPLE GALLINULE

The range of the Purple Gallinule is tropical America to southern Illinois, wintering from Florida southward.

This brilliant bird is common to the Southern States. It is generally associated with the Florida gallinules, but is marked by more brilliant plumage.

"It has little of the aspect of a gallinule, but stands higher, and has its legs more forward. As it walks, the neck is alternately bridled up or thrown forward, and its short black and white tail is changed from a semi-erect to a perpendicular position, with a flirting motion. As this bird walks over the tangled leaves and stems of aquatic plants resting on the surface of the water it moves with great deliberation, frequently standing still and looking leisurely about. Ever on the lookout for any danger that may menace it, at the least noise it hides among the rushes. Only when its place of concealment is invaded is flight attempted, when progress in the air is heavy and not well sustained. Its voice is loud and strong, but has in it nothing remarkable.

"Worms, mollusks, and the fruit of aquatic plants are its food. It gathers seeds and carries them to its beak with its claws, and it also makes use of its claws in clinging to the rushes, where the water is very deep." (Brewer.)

The nest is a platform of reed stalks built in rushes over water or in marshes; eight to ten eggs are laid. The eggs are spotted and smooth shelled, and the nestlings when first hatched are clad in dark-colored brown.

FLORIDA GALLINULE

The Florida Gallinule, or Rice-hen, has a more extensive range than the name would indicate. While many of these birds remain in the Atlantic and Gulf States during the summer, the bird is found as far north as Massachusetts and Maine and westward along the Canadian border to Minnesota. In the Middle States west of the Mississippi River their appearance is somewhat erratic, though they abound in certain localities in Ohio, Michigan, Indiana, and Illinois. The Calumet region, near Chicago, is a favorite summer home. They show a preference for stagnant water surrounded by cattails and bulrushes.

Gallinules sometimes appear as a "connecting link" between rails and coots. I have observed the king, sora, and Virginia rails, with the coot, nesting near to gallinules, and noted a striking resemblance between the gallinules and some rails; for instance, the sora, with its compressed body and widespread toes, always reminds me of a small gallinule. Both swim about among the rushes, and I noticed that one sora deposited her eggs in a gallinule's nest.

Like the coot, the gallinule often breeds in colonies. Some nests are built in clumps of dead rushes and float upon the water in a manner similar to that of a grebe. Other nests are suspended a foot or two above the water, and are handsomely woven with blades of grass and rushes. When the nest is completed a pathway is constructed of the same material that is used in building the nest proper, and forms a runway extending from the nest into the water. This is a

FLORIDA GALLINULE.
About ½ Life-size

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FROM COLOR BY GERARD A. ARBOTT

NEST OF THE FLORIDA GALLINULE.
(Gallinula galeata).

AMERICAN COOT

characteristic which immediately distinguishes a gallinule's nest from that of a coot.

The number of eggs range from seven to fourteen. I have eleven eggs taken May 28, 1902, at Worth, Cook County, Illinois. The nest was built of sedges and rushes fastened in a clump of same over water three feet deep, on the border of a pond.

COOT

The Coot, or Mud Hen, ranges throughout North America to Alaska, being rare on the Atlantic coast but abundant about marshes in the Mississippi Valley; it ranges south in winter to the Gulf States.

The coot is one of the connecting links between waders and swimmers, partaking of the habits of our rails and gallinules, but is more aquatic than either. The feet, like those of the grebe, are lobed, enabling the bird to walk on floating vegetation and over soft soil with great ease and to swim more readily among reeds, etc. This bird is not really a game bird, but is legally regarded as such. It fills the bag of many would-be sportsmen who are unable to shoot ducks or more palatable game. Coots are fairly abundant throughout the United States and southern Canada. Over the northern tier of states into Ontario and Manitoba the mud hen summers in great numbers.

This is our only marsh bird with a white bill, thus serving as an infallible field mark. When swimming the birds accompany each stroke of the foot with a nodding of the head similar to the movement on land of our semi-domesticated dove or pigeon.

The nests are beautifully constructed of dead rushes, and especially grass. These receptacles are deep and are cleverly woven to living vegetation over water from six to thirty inches deep. The nests rise and fall with the water, so that the birds have no fear of floods.

The eggs have a decided clay color, dotted all over with minute specks of dark brown or black.

THE NORTHERN PHALAROPE *

The Northern Phalarope has a wide range, extending throughout the northern portion of the Northern Hemisphere and in winter reaching the tropics. It breeds only in Arctic latitudes. It is a bird of the ocean and seldom is observed inland, except as a rare migrant early in May or in October. Then it "frequents slow streams or marshy pools."

This phalarope belongs to the shore birds and to a family that contains but three known species. Two of these are sea birds. The other, Wilson's phalarope, is an inhabitant of the interior of North America. Their feet are webbed, and usually two marine forms, or sea snipe, as they are sometimes called, migrate in flocks far from land.

It is not an exaggeration to say that it is one of the most beautiful of our aquatic birds. All its motions are graceful. It possesses a quiet dignity and elegance while swimming in search of food, which it frequently obtains by thrusting its bill into the water. In this manner it obtains a large number of marine animals and flies that may be on the surface of the water. When on the shore it may be seen wading and swimming in ponds near the coast.

NORTHERN PHALAROPE

Phalaropus lobatus

Life size

Its habits at the mating season are most interesting. "As the season comes on when the flames of love mount high, the dull-colored male moves about the pool, apparently heedless of the surrounding fair ones. Such stoical indifference usually appears too much for the feelings of some of the fair ones to bear. A female coyly glides close to him and bows her head in pretty submissiveness, but he turns away, pecks at a bit of food, and moves off; she follows and he quickens his speed, but in vain; he is her choice."

Then, after the four dark and heavily marked eggs are laid, the "captive male is introduced to new duties, and spends half his time on the eggs, while the female keeps about the pool close by."

Their nests, at best, consist of only a few blades of grass and fragments of moss laid loosely together. Often the eggs are laid in some convenient hollow, with no bedding whatever except that which happened to lodge there.

WILSON'S PHALAROPE

Of the three Phalaropes inhabiting North America this is the only one peculiar to this continent. Their range extends across the United States and southern Canada from the Atlantic to the Pacific, much more common in the interior. They breed from northern Illinois and Utah northward, wintering south to Brazil and Patagonia. An extremely interesting species, it feeds principally in shallow water, either by wading or swimming. The feathers on the breast are long and compact, and the birds are just as immune from the water as are our more aquatic ducks and

gulls. One of the most beautiful sights in the prairie regions from northern Illinois through Minnesota and North Dakota is a number of these graceful creatures floating buoyantly in a shallow pool.

The females are by far the handsomer, slightly larger than their mates and handsomely though delicately colored. While looking for the nest the bird student is not deceived by these reversed conditions, so characteristic of the species. Naturally, the dull-colored bird among all other American species, where a difference in plumage is noticeable, assumes the household duties. Therefore, the uneasiness of the little, inconspicuous male phalarope conveys the idea that we are trespassing upon the breeding-grounds. The handsome female deposits her eggs in a nest which has been constructed by her mate. It is composed of dead stems placed in a hollow underneath a tuft of grass, or at times a large, bulky structure is arranged on top of the damp soil just above high-water mark.

The female, after laying the eggs, usually joins others of her sex, and they move leisurely about the country, feeding on mud flats or wet meadows, until they become extremely fat. They do not join the males or young until time for the southward migrations in September.

The note of the phalarope is a beautiful little "honk" with a nasal twang to it. I discovered a small colony, comprising less than a dozen birds, early in May, 1911. They were occupying a slough near a body of fresh water. It was necessary to climb a fence before entering the nesting-grounds. This was a signal for the little colony to rise simultaneously and fly back and forth over the marsh with

FROM COL. GERARD A. ABBOTT

NEST OF WILSON'S PHALAROPE.
(Phalaropus tricolor).
About life-size.

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AMERICAN AVOCET

slow, deliberate wing-beats. When directly overhead the males would poise momentarily and utter soft, mellow notes of protest. Each note was emitted apparently with some effort, causing the bird to check its flight and throw the head backward.

The only way I succeeded in locating the nests was by watching the males through my field glasses from a distance. Presently each poised as a black tern is known to do just over the nest. Frequently the first setting of the phalarope is destroyed by an overflow. A second setting is then laid, consisting usually of only two instead of four eggs.

The eggs are clay-colored, decidedly and handsomely blotched with umber brown and black, particularly at the larger end. The young when hatched are covered with a coat of chestnut brown, and are led about by the male for about two weeks before they can fly.

Wilson's phalarope is local in its habits and is becoming rare in the Great Lakes region. It seems hard to realize the reports furnished by Mr. Nelson, the first ornithologist of record for northern Indiana and Illinois. He reports in 1876 that the little phalarope was then the commonest of our small waders, outnumbering even the spotted sandpiper and killdeer.

AVOCET

The Avocet ranges throughout temperate North America, wintering along the Gulf Coast and southward.

The avocet is outwardly unlike other American birds; the bill is recurved, and, though a shore bird, the toes are

webbed. The bill is so soft and pliable that one may wind it several times about the finger. While wading rapidly, and with bill touching bottom, the bird swings this bill from side to side as a mower a scythe, thus enabling the bird to feed in muddy water. These birds grow less common from the Mississippi to the Atlantic. Their favorite haunts are small inland lakes in the prairie districts from Colorado and Nebraska northward into Canada, breeding in numbers about the alkali waters of the Salt Lake region.

By some observers their call is described as the "bark" of the avocet. They wade into the water up to their breasts, and, if progress on foot is difficult, they swim buoyantly about after the manner of our phalaropes.

The plumage has a beautiful pinkish cast about the head, neck, and breast. Individual birds differ considerably in plumage and size of bill. The wings show less development than those of most waders.

Probably no other wader is more closely feathered underneath than this species. The covering resembles that of our gulls, which explains the bird's ability to alight in deep water and swim about without wetting the flesh.

Four buffy brown, black-spotted eggs are deposited in a little depression close to the water's edge. The birds are not close sitters, but manifest an uneasiness at the approach of man.

THE BLACK-NECKED STILT*

Stilt would be a peculiarly appropriate name for this bird, with its excessively long legs, were it less graceful and dignified in its walk, moving on land with easy and meas-

BLACK NECKED STILT
Himantopus mexicanus
(Linnaeus)

ured tread, not in a "tremulous manner," says Colonel Goss, as stated by some writers.

The stilt is an inhabitant of temperate North America from New Brunswick, Maine, Minnesota, and Oregon southward; south in winter to Peru, Brazil, and West Indies.

This slender wader inhabits the shores of bays, ponds, and swales where scantily covered with short grasses. It swims buoyantly and gracefully, and on land runs swiftly, with partially raised wings, readily tacking or stopping in its chase after insect life. Its flight, says Goss, is not very swift, but strong and steady, with sweeping strokes, legs fully extended, and head partially drawn back, after the manner of the avocet, and, like the latter, will often meet one a long distance from its nest, scolding and threatening.

The food of the Black-necked Stilt consists of insects, minute shellfish, and larvæ, and various small forms of life. The birds are social, usually living and breeding in small flocks.

The nests of these birds — when placed on dry, sandy land — are slight depressions worked out to fit the body; on wet lands they are upon bunches or masses of vegetation. Eggs, three or four, buff to brownish-olive, irregularly but rather thickly splashed and spotted with blackish brown.

CHAPTER VIII

SHORE BIRDS

Snipes and Sandpipers are generally distributed throughout the world, breeding particularly in the northern part of the Northern Hemisphere, forty-five species being found in North America. They are shore birds and are seldom found far from water. While gregarious in migration, they do not nest in colonies. Their long bills, some of which are sensitive, are used as probes, while the woodcock moves the upper mandible by curving the point downward, the better to extract worms from the earth. While not song birds, some of them have a short musical note at nesting times. Although small, they are favorite game birds.

Eight species of plover are found in North America. They have a general resemblance to the true snipes, but have shorter bills and are not fitted for probing, as they obtain food from the surface of the ground. In feeding habits some plovers resemble the grouse. All shore birds are powerful fliers and perform extensive migrations. They possess pleasing call notes or whistles. Economically the group is useful, both because they are game birds and because of the nature of their food.

Turnstones are of the family Aphrizidæ. They are a small family consisting of only three species, all of which are found in North America. They are small, plover-like, sea coast birds. They prefer the outer beaches.

WOODCOCK

The Woodcock ranges throughout eastern North America, north to Labrador, breeding throughout most of the range, wintering from southern Illinois and Virginia southward.

The woodcock is a delight to the sportsman. When the drizzle has partly taken the frost out of the ground and we are experiencing twelve hours of daylight, the woodcock returns to the Mississippi Valley and the Great Lakes region, migrating by night. Those who know how and where to look for him are conscious of his presence when they visit the willow patches along lakesides or tramp through the hazel, which leads down to a springy spot. In these places the woodcock, or "owl among snipe," may be found probing the soil with his long, sensitive, flexible bill. He feels the contact with a juicy worm, and cleverly moves the upper mandible, thus extracting the morsel from the soil. The eyes are placed far back on the head, giving the bird great visionary power while probing.

Woodcocks are gluttons, consuming twice their own weight in twenty-four hours. Another habit is that of beating the earth with their feet, sounding like the patter of rain. This noise brings the earth worms to the surface, where they are captured.

The song-flight of the woodcock begins shortly after his arrival from the South and may be heard well into the warm summer nights of June, when the bogs are so infested with mosquitoes as to make life unbearable. The proper time to

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AMERICAN WOODCOCK,

Life size.

see the woodcock perform is during the cool nights of April when the birds are breeding.

I visit the moist places immediately after sunset, where during the daytime I have flushed woodcock or observed perforations among the soft leaves. Presently a short nasal call comes from the underbrush. It is suggestive of the nighthawk's call. After locating the bush under which the "speaking" takes place, there is a rustle of wings and a bird rises in circles. The wings beat rapidly, but the flight seems slow and laborious, as with legs dangling and tail spread, the creature presents an ungainly appearance. During the ascent a continuous warble seems to indicate that the object which we see in the dim twilight is in a fit of ecstasy. Scarcely can we attribute this melodious outpour to such a droll-looking bird as the woodcock. The "songster" has reached a height of several hundred feet, and the liquid notes become more intense, until the music suddenly ceases, and the bird darts obliquely to the ground, alighting within a few feet from where he arose. The "speaking" is resumed, and in about sixty seconds another flight is made.

The three outer primaries, or quill feathers, of the woodcock's wings are shorter than the others. These undeveloped primaries are turned edgewise during flight, producing a decided whistle, which is often the first intimation we have of a woodcock's presence.

Woodcocks are active during cloudy days, venturing forth to feed upon the earthworms then on or near the surface. In undisturbed localities they do not flush until one is within a few feet of them, when they suddenly spring into the air, rising perpendicularly to a height of ten feet, then

flying rapidly away in a zigzag course, suddenly dropping back into cover.

Various tints in the plumage harmonize remarkably with the brush, grass, and leaves when the woodcock is on her nest. A soft, leafy hollow in the earth at the base of a shrub or under a fallen bush is used for nesting purposes. While the bird is laying she cleverly covers her eggs with leaves, commencing incubation when the fourth and last egg is laid.

Sitting woodcocks exhibit so much confidence in their protective coloration that I have frequently removed the parent from the nest with my hand. I have watched them for hours, and have yet to see a sitting bird show uneasiness until I am within two feet of the nest, unless her winking is too quick for human eye; she is able to suppress even that. The male is usually found near the incubating bird.

Often the country is covered by a snowfall in April, when the woodcock becomes wary and vacates the nest at the least indication of danger. This clearly illustrates that she realizes protective coloration has ceased while the earth is clothed in white.

The four eggs are creamy or light brown, spotted and blotched with various shades of brown and lilac. Incubation continues three weeks, and the young leave the nest as soon as hatched to be piloted about through the underbrush.

WILSON SNIPE

This famous game bird, known also as jacksnipe, English snipe, and common snipe, has an extensive range covering North America in general. Late in March Wilson Snipe

WILSON'S SNIPE

return to the Great Lakes region, resorting to cornfields, marshes, and other places where black, rich soil is in evidence. It feeds, after the manner of the woodcock, by probing with the sensitive bill into the earth for worms and tender rootlets.

A startled snipe springs from the ground with a "yeip-yeip-yeip," flying swiftly and irregularly, but usually dropping into cover within a few seconds. After alighting it runs swiftly over the ground for several yards and again settles down to feed. This bird has been found breeding about Salt Lake, Utah, and occasionally in the states bordering Canada. The favorite breeding-grounds are from the Atlantic to the Pacific through the southern half of Canada.

The nests are mere depressions in the soft soil near a marshy place. Four beautiful eggs are deposited with the small ends together on a little bed of dead leaves and grass. The eggs are greenish-drab, marked with spots and lines of rich brown and black. In April, while searching for woodcock in the Great Lakes region, the writer has frequently witnessed the song-flight of the Wilson snipe. The first intimation that such a performance is contemplated is a clucking which is uttered in the shelter of a few rushes or a little grass. Presently a snipe rises and circles about overhead. At intervals the bird darts obliquely through the air, producing a whistling sound resembling the whiz of a missile through space. Suddenly the bird drops to the ground and resumes his clucking. He soon takes to wing again, and this time maintains a horizontal course at a low elevation until joined by the female.

THE DOWITCHER *

The range of the Dowitcher is limited to the eastern part of North America. It has been reported as far west as the Mississippi River. It breeds in the far North, usually within the Arctic Circle. Its migration is extensive, for it winters in Florida, the West Indies, and in the northern portion of South America.

The dowitcher is one of the best known of our coast birds. It bears many popular names, such as Gray Snipe, Grayback, Dowitch, Driver, Brown-back, and Bay Bird. The generic name *Macrorhamphus* is derived from two Greek words—*makros,* meaning large, and *rhamphos,* meaning bill. The specific name *griseus* means gray, and probably has reference to the grayish color of the winter plumage.

The dowitchers are the most numerous of the seaside snipes. At the retreat of the tide, flocks will frequently settle on the shore in such large numbers and so close together that several dozen have been killed at a single shot.

Mr. Chapman tells us that "they migrate in compact flocks, which are easily attracted to decoys by an imitation of their call. Mud-flats and bars exposed by the falling tide are their chosen feeding grounds. On the Gulf Coast of Florida I have seen several hundred gathered in such close rank that they entirely concealed the sandbar on which they were resting."

In summer the general color of these birds is dark brown and the feathers are more or less edged with a reddish tinge. Underneath, the general color is light cinna-

DOWITCHER.
(Macrorhamphus griseus.)
Nearly ⅔ Life-size.

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mon, with white on the belly. In the winter the plumage is more gray and the under parts are much lighter in color.

This bird usually lays four eggs of a buffy-olive color, which are marked by brown, especially near the larger end.

THE KNOT OR ROBIN SNIPE*

The Knot or Robin Snipe is a bird of several names, as it is also called the Red-breasted, Ash-colored Sandpiper, the Gray-back, and the Gray Snipe. It is quite cosmopolitan, breeding in the far North of both hemispheres, but in winter migrating southward and wintering in the climate of the southern United States and Central America. The knot belongs to the snipe family, which includes one hundred or more species, about forty-five of which are inhabitants of North America. Nearly all the species breed in the higher latitudes of the northern hemisphere. These birds frequent the shores of large bodies of water, and are seldom observed far from their vicinity. Their bills are long and are used in seeking food in the soft mud of the shore.

The knot visits the Great Lakes during its migration and is frequently observed at that time. Its food, which consists of the smaller crustaceans and shells, can be as readily obtained on the shores of these lakes as on those of the ocean, which it also follows.

Dr. Ridgway tells us that "Adult specimens vary individually in the relative extent of the black, gray, and reddish colors on the upper parts; gray usually predominates in the spring, the black in mid-summer. Sometimes there is

no rufous whatever on the upper surface. The cinnamon color of the lower parts also varies in intensity."

Little is known of the nest and eggs of the knot, owing to its retiring habits at the nesting time and the fact that it breeds in the region of the Arctic Circle, so little frequented by man. One authentic report, that of Lieutenant A. W. Greeley, describes a single egg that he succeeded in obtaining near Fort Conger, while commanding an expedition to Lady Franklin Sound. This egg was a little more than an inch in length, about one inch in diameter. Its color was a "light pea-green, closely spotted with brown in small specks about the size of a pinhead."

THE PECTORAL SANDPIPER *

The Sandpiper is distributed through North, Central, and South America, breeding in the Arctic regions. It is also of frequent occurrence in Europe. Low, wet lands, muddy flats, and the edges of shallow pools are its favorite resorts. The birds move in flocks, but, while feeding, scatter as they move about, picking and probing here and there for their food, which consists of worms, insects, and small shellfish, tender rootlets, and birds. "But at the report of a gun," says Colonel Goss, "or any sudden fright, spring into the air, utter a low whistling note, quickly bunch together, flying swift and strong, usually in a zigzag manner, and when not much hunted often circle and drop back within shot; for they are not naturally a timid or suspicious bird, and when quietly and slowly approached, sometimes try to hide by squatting close to the ground."

PECTORAL SANDPIPER.
¾ Life-size

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LEAST SANDPIPER.
(Tringa minutilla).
About Life-size.

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The note is deep, hollow, and resonant, but at the same time liquid and musical, and may be represented by a repetition of the syllables "too-u, too-u, too-u, too-u, too-u." The bird may frequently be seen running along the ground close to the female, its enormous sac inflated.

Mr. Murdock says the birds breed in abundance at Point Barrow, Alaska, and that the nest is always built in the grass, with a preference for high and dry localities. The nest was like that of the other waders — a depression in the ground, lined with a little dry grass. The eggs are four, of pale purplish-gray and light neutral tint. It is sometimes called Grass Snipe.

THE LEAST SANDPIPER *

This lively, social little Sandpiper is common throughout America, nesting in the Arctic regions. It is migratory, arriving the last of March to the first of May, a few occasionally remaining until November. It has been found breeding as far south as Sable Island, Nova Scotia, but its usual breeding grounds are north from Labrador and Alaska to Greenland, wintering from California and the Gulf States southward. It is more restless and active than the larger sandpipers, but in habits it differs little, if any, from them. It runs nimbly about, often with the large waders, feeding around and beneath them, apparently heedless of danger. While watching the birds, they will often pass close to the feet, but at the least motion the whole flock will spring into the air "like a flash, with a startled 'Peep, peep!' and in a compact form swiftly sweep about

in an uncertain manner, canting from side to side, showing rapidly the white beneath and the dark above, a wavy, pretty sight, the white at times fairly glistening in the sunlight." When migrating or going any distance, their flight is steady and direct.

The sandpiper's nest is placed on the ground in a slight depression, scantily lined with leaves and grasses. The eggs are three or four, of ground color, cream buff to light drab, spotted and blotched irregularly with varying shades of brown, thickest about the larger end.

The black and white outlines which are often seen of this bird make it possible, perhaps, to recognize it, but the perfect likeness which we present will enable the observer to distinguish it at a glance from all others of the family, of which there are about a dozen well-known species.

THE RED-BACKED SANDPIPER *

Very early in the spring the Red-backed Sandpiper leaves its winter home in the States and countries bordering the Gulf of Mexico and starts on its long journey to the cooler region of the far North. It arrives in Alaska early in May, in full breeding plumage. The note of the sandpiper is not loud, but has a rich, full tone, difficult to describe, but pleasant to hear.

The red-backed sandpiper is not a bird architect, and it does not build even a simple home. A slight hollow on a dry knoll, which commands a clear view of some body of water, is the site usually selected. Here the eggs are laid, either upon the dry grass already in the hollow or upon a

RED-BACKED SANDPIPER.
(Tringa alpina pacifica.)
¾ Life-size.

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SANDERLING
Calidris arenaria
♂; Life-size

few bits of leaves, twigs, and grass hastily gathered and placed without order. After the appearance of the eggs the male seems to realize the responsibility of family cares, for his merry song ceases and he devotes his share of time to sitting on the nest, protecting the eggs with his warm body. That this is the case is shown by the bare patches that appear on his breast at this season.

With such a home as is prepared for their reception, it is not surprising that the little red-backs leave the nest as soon as they are hatched, and freely run about. When frightened, they readily conceal themselves by sitting on the ground and remaining quiet.

This species exhibits considerable variation in the color of its plumage. In the spring and summer it may be known by the black patch on the belly and reddish color of its back, which is mottled with white and black. At this season it is often called Blackbreast. In the fall and winter the upper parts are brownish-gray in color and the under parts are whitish. It is then frequently called the Leadback. Though a beach bird, it is not infrequently met in grassy marshes, and by some it is called the Grass-bird.

THE SANDERLING*

This little shore or beach bird is sometimes called the White or Surf Snipe, and the Ruddy Plover. It breeds only in the colder portions of the northern hemisphere and migrates southward, even beyond the equator, where it makes its home during the winter months. It frequents chiefly those regions near the surf-beaten shores of the

oceans. It is also a common visitor to the beaches of larger inland waters. On these shores its beautiful form and habits are very noticeable. It walks and runs in a dignified and graceful manner as it chases the receding water searching for its food.

The pure white plumage of the under parts of the bird is a striking characteristic as they reflect the sunlight during flight.

The feet of the Sanderling are unlike the other members of its family, being without a fourth toe, entirely divided, and without a membrane. This indicates that it frequents firm surfaces and that it is fitted for running and walking upon the long, shelving beaches over which the tides and surf roll, leaving an abundance of its particular food.

The nest of the sanderling, rudely constructed of dried grass and decayed leaves, is placed in a depression in the ground, so situated as to be protected by the natural vegetation of the region. The eggs, usually three or four in number, have an ashy or greenish-brown ground color, and are finely spotted with different shades of brown.

The food of the sanderling consists mainly of sea worms, small bivalve shells, and crustaceans, though it will also eat buds and insects. It would seem as if its hunger was never satiated—always busy, always moving. These expressions describe its habits, as, with its fellows and other snipe with which it associates, it seeks its food in the wake of the retreating wave, and turning, runs before the incoming water, which seldom engulfs it. To watch their peculiar antics is a most interesting recreation.

MARBLED GODWIT.
(Limosa fedoa).
About 2/5 Life-size.

THE MARBLED GODWIT*

As is the case with many of our game birds, this species bears a number of common names, such as the Straight-billed Curlew, the Marbled or Brown Marlin, the Red Curlew, and, among sportsmen, the Dough and the Doe Bird.

The geographical distribution of the Marbled Godwit includes the whole of North America, though it is infrequent on the Atlantic coast. Its nesting range is chiefly limited to the interior from Iowa and Nebraska northward to the Saskatchewan. In winter it migrates to Central America, Cuba, and the northern part of South America.

In company with the long-billed curlew and some species of sandpipers, it builds its nest on the grassy banks of rivers and ponds, usually in some natural depression. Occasionally, however, the nests are found on moist prairies, some distance from a stream. In these grass-lined nests are laid the three or four bright olivaceous, drab, or creamy-buff eggs that are variously spotted or blotched with varying shades of brown. They are domestic and seemingly devoted to their fellows. When one of their number is wounded and unable to fly, they will frequently remain in the vicinity, flying around the spot where lies their wounded comrade.

Its food consists of the smaller crustaceans, worms, snails, insects and their larvæ. These are captured from the surface of the water, on the shore, or are probed for with the long, sensitive bills, in the soft soil of the banks or under shallow water. When feeding, it moves in an

easy and graceful manner. Its grace and dignity well merit the saying that "It is one of the most beautiful of the birds sought by the sportsman."

THE GREATER YELLOW-LEGS*

No bird bears a more appropriate name than does this wader with its long yellow legs. In many localities, Greater Yellow-shanks is the name by which it is commonly known, and who that is acquainted with it does not recognize that the name Tell-tale is also very characteristic of the bird's habits? When flushed, the Yellow-legs excitedly rise from their feeding grounds, uttering loud whistling notes which cannot well be expressed in syllables, but are easily imitated by the hunter.

None of the waders is more graceful than the Greater Yellow-legs. They frequent watery bogs and the muddy margins of streams. There they search for their food of insect larvæ, small crustaceans and fish, worms, and small mollusks, frequently wading in water deep enough to reach more than half way up to their bodies. In flying, their necks and legs are extended to their full length. Their flight is swift, and frequently they rise to great heights. When about to alight, they circle several times over the locality before settling. When they do alight, they stand for a few moments with their wings held over the body and pointing directly upward. It has been suggested that this habit arises from a desire to test the firmness of the soft soil before they bear their weight upon it. When wading, they move about in a quick and apparently excited man-

GREATER YELLOW LEGS
(Totanus melanoleucus).
½ Life-size

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LESSER YELLOW LEGS.
(Totanus flavipes).
¼ Life-size.

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ner, "with much balancing and vibrating of the body and graceful darting of the head in various directions," while they seek for their food.

The greater yellow-legs exhibits great anxiety and sympathy for a wounded companion, and for a time seems to forget its own danger.

The range of the greater yellow-legs is an extensive one which includes America in general. It breeds upon northern Illinois and Iowa northward, and migrates south in the fall as far as Patagonia, some wintering in the Gulf States. In its migrations, it seldom remains more than a day or two at any one station, though the fall passage is somewhat slower than that of spring, when it seems to be in haste to begin the work of nesting.

YELLOW-LEGS

This is the bird commonly known to the sportsman as the Lesser or Summer Yellow-legs, or Yellow-legged Plover. In general habits and color there is little difference between this and the greater yellow-legs. The present species, however, is probably more partial to the interior during migrations. Yellow-legs winter from the Gulf to Patagonia. Their breeding range is chiefly, if not entirely, north of the United States, but many summer in the Great Lakes region. These waders, like others of their family, do not always breed until they are two years of age, and so many are encountered during the spring and summer in latitudes quite southerly for this sub-arctic shore bird. Arriving in the Great Lakes region after the first warm rains of April,

the yellow-legs tarries in wet meadows until the last of May. Two or three days of almost continued flight carry these powerful fliers into the colder climates of Labrador and Hudson Bay.

The three or four eggs are deposited soon after the birds arrive at their breeding grounds. I have a set of eggs from Alberta, Canada. The background is light greenish-drab, and the markings of rich brown and purple are clustered about the large end. These are large for the size of the bird, and the young emerge from the shell strong and able to run in twenty-four hours. The southward flight commences early in August, and the birds linger in temperate North America until cold weather lessens their food supply, when they resume their southward journey to the equator and beyond.

WESTERN WILLET

The Willets are the largest of our short-billed shore birds; in fact, they are exceeded in size only by the curlew and godwits of the entire shore bird family.

The true willet is an Eastern form, occurring on the Atlantic seacoast, breeding usually on the islands opposite Georgia and the Carolinas.

The Western Willet is very similar, but slightly darker in plumage, occurring from western Indiana and southern Texas, up the Mississippi Valley, through Illinois, Dakota, and Kansas, into Canada.

These birds partake of the habits of the true plovers, sandpipers, and especially the yellow-legs, like which they usually travel in small flocks, and are extremely noisy,

WESTERN WILLET.

(Symphemia semipalmata inornata.)

especially during the breeding season. It is a common occurrence, however, to meet with a solitary bird feeding on the sandy beach of our large inland lakes, or on the edges of marshes. They often breed in small colonies.

Willets are beautiful birds when on the wing. Their flight is strong, and the black and white effect is a conspicuous field mark. Their food consists of small insects and aquatic life, which they obtain from the surface of the ground in both wet and dry places.

The bird takes its name from the clear, flute-like notes, which are uttered in syllables sounding like "Pill-will-willet, Pilly-willy-willet!" repeated in rapid succession.

The western willet is found nesting on the prairies of Minnesota, Dakota, and Manitoba. Unless the parent bird has been sitting upon her eggs for some days, she vacates the nest at the slightest indication of danger and approaches the intruder from the opposite direction. The nests, are therefore, very difficult to find, unless the eggs are well incubated, when the mother sits close, vacating her nest when the intruder is almost upon her. The nests are often built in clumps of grass where the water is a few inches deep, or on a grassy slope of tableland overlooking the water.

On Mustang Island, in the Gulf of Mexico, the western willet breeds in colonies. Arriving on the island, the ornithologist is greeted from all sides by the male birds circling about overhead, calling so incessantly that the intruder hears nothing else until he leaves the island, and the birds settle down into the marsh grass to resume their nesting. The four handsome, pear-shaped eggs vary greatly in color.

UPLAND PLOVER

This handsome wader with a dove-like disposition, though a true plover, is often called the Bartramian Sandpiper, the Field Sandpiper, Prairie Pigeon, and Quaily.

These birds breed from New Jersey, Illinois, and Colorado northward, wintering in South America. Though shy of footmen, they show little fear of those on horseback. Protected by plumage resembling dry grass, they are difficult to detect.

Several years ago I was walking through a pasture, when one of these birds approached the roadside and with upraised wings alighted on a fence post and eyed me curiously. Her plaintive alarm note was a quavering whistle quite in keeping with the way she folded her long pointed wings. Two years later, when in the same locality, I was walking against the wind one warm day, when a bobolink fluttered to the grass six feet ahead. Parting the grass and weeds, I decided to secure this nest for a group, and settled myself preparatory to making a few notes. After some fifteen minutes I placed one hand behind me to arise, when my finger-tips touched something soft, and a bartramian warbled from a tussock within an arm's length. She was a "crippled bird," and her notes indicated the utmost distress.

During the nesting season the male bartramian mounts high in the air, and on quivering wings utters a long-drawn-out, plaintive whistle. This sound, when first heard, usually produces an uncanny effect upon the listener, who is unable

UPLAND PLOVER.
(Bartramia longicauda).
Life-size.

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to identify its author, which appears outlined against the sky as a mere speck. Presently the bird volplanés to the earth and runs nimbly over the grass in a most unconcerned manner.

The four large, pear-shaped eggs rest in a grass-lined cavity with their points together. The background of the egg varies from creamy-buff to a decided clay color. The eggs are marked with spots and blotches of dark brown and lilac.

SPOTTED SANDPIPER

The Spotted Sandpiper, Tip-up, or Peetweet is probably the commonest and most familiar of our small wading birds. It is a typical representative of the large family of shore birds, and is found from Brazil northward to the Arctic regions about Hudson Bay and upper Alaska. They breed throughout their North American range, spending the winter about the Gulf Coast and southward. Scarcely any of our artificial lakes or lagoons in our parks are without a pair of these restless little birds. They run swiftly over the pebbly beaches, calling in shrill whistles "peetweet" incessantly, as they tilt the body forward and backward.

They habitually fly so close to the water as barely to keep the tips of their long wings from touching. So partial do they become to certain spots along the shores, that, if disturbed, they return to the spot from which they were originally disturbed, as soon as the intruder has passed.

The eggs are laid during the second and third week of May. Grassy or weedy spots close to the water's edge are covers under which the female scratches a slight hollow,

lining it sparingly with dry bits of grass and stems. Four pointed eggs are laid. They have a buffy or clay background, and are daintily and heavily marked with black and umber. The little spotted sandpiper is the same size as our cowbird, but deposits an egg three times as large. The young have so developed within twenty-four hours after hatching that they may be seen following their parent about the edges of our creeks and ponds.

LONG-BILLED CURLEW

This king of shore birds is the largest of his tribe, and seems to reign supreme in the territory over which he ranges. The Curlew has retreated since the settlement of the middle and western United States, as not many years ago it was of regular occurrence from the Atlantic to the Pacific, while it is now rare east of the Mississippi. Vast stretches of uncultivated lands of the West still afford the curlew suitable feeding and breeding grounds, so they still abound in the prairies of Nebraska, Colorado, and Montana. During my trip up the Yellowstone River, in 1906, I found this bird far out on the prairies, in company with upland plover and the sage hen. During the heat of the day the birds appear in pairs about small alkali pools, where the remarkably long bill is perfectly adapted for removing crawfish from their holes.

I watched a pair through my field glasses as they were feeding about a pond. Presently they flew to the distant hills. Long had I wished to locate a curlew's nest. The female had undoubtedly returned to her eggs. Distance

LONG BILLED CURLEW
½ Life-size

in the Western country is deceptive, so I walked fully two miles before raising the suspicion of the male. He circled about, coming within three feet of my face and suddenly darting upward. I scanned every foot of ground, and found, after two hours' search, that the wary male had led me five hundred yards away. I retraced my steps to the spot where he first attacked me. He became frantic in his efforts to again mislead me, but I continued straight ahead and presently he was running about the ground in front of me. I dropped my hat, to mark the spot, even if the vegetation was too scant for concealment. Finally I saw the female lying perfectly flat with neck and bill on the ground. She was completely surrounded by prickly pears, and so, safe from prowling animals and reptiles. I advanced, when she arose, shook herself, and ran rapidly away. The male was calling so noisily that seven other curlews joined in the attack.

The four eggs rested in a little hollow with the points together. They were pear-shaped, having a pea-green background beautifully spotted with different shades of maroon. These eggs are slightly larger than those of our domestic turkey, though laid by a bird only one-fourth as large. This gives a good idea of how large are the eggs of the shore bird in proportion to those of other species. They perform such extended migrations that these birds have no time for nest building, and the young attain such development and strength before hatching that they are able to care for themselves in a few hours. These downy young resemble the adult bird but little. They are of a brownish color, and have straight bills.

THE ESKIMO CURLEW*

The Eskimo Curlew, or Dough Bird, as it is frequently called, has an extensive range covering the entire length of eastern North America. In the United States, it is known only as a migrant, for it seldom winters within its borders, but passes southward into Central America and throughout South America. As it nests within the Arctic Circle, it is seldom seen south of the Canadian border during the summer months. The northward migration takes place during the last of April and early in May; the southward begins about the first of September. Its favorite feeding hours are at the beginning and at the close of day, and during its migrations it frequents grassy marshes and neighboring fields, where it finds a plentiful supply of insects, earthworms, and mollusks.

While in the North, the curlew's food consists to a great extent of berries, especially the small deep purple berry called the bear or curlew berry. Dr. Coues says that it feeds so extensively upon this berry that the intestine and the "legs, bill, throat, and even the plumage are more or less stained with the purple juice." These berries are so abundant that the curlew becomes exceedingly fat, and forms a dainty morsel for the table of the epicure.

The little curlew, as the Eskimo curlew is sometimes designated, very closely resembles the short-billed curlew in the markings of its plumage, but its much smaller size is a ready means of distinguishing it. It also frequents fields more commonly than the short-billed species. Not

ESKIMO CURLEW.
Numenius borealis).
About ¼ Life-size

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BLACK-BREASTED PLOVER

infrequently it is found in company with the golden plover during its migrations through the interior of the United States.

In its habits the curlew quite closely resembles the plover. Mr. Mackay says that "In migration they fly in much the same manner, with extended and broad-side and triangular lines and clusters similar to those of ducks and geese at such times."

BLACK-BELLIED PLOVER

The Black-bellied Plover, or Beetle Head, is nearly cosmopolitan; it breeds in the Arctic regions and in America, winters from Florida to Brazil.

The bird in its various phases of plumage closely resembles the golden plover, but can be positively identified at any season of the year by the presence of a hind or fourth toe, which is wanting in all other plovers. These birds have the legs and wings remarkably developed. Plovers lack the long boring bills which are possessed by the sandpipers and woodcocks. The bills of these common tide birds are short and stout, and they pick their food from the surface of the earth, feeding on both high and low land.

In spring and summer the breast is one mass of jet-black feathers, the upper wing coverts, tail, and back being light gray. The feathers are white with innumerable little bars of dark brown, giving the bird a beautiful gray effect, so in contrast to most birds which are darker above.

The autumn migration is apt to be along the seacoast when the birds fly with the wind. During the spring migra-

tions the golden plover frequently inhabits the prairies and uplands, but the present species is usually met with along the edges of streams and lakes, as it seems partial to feeding in muddy places. Here their plumage serves as a great protection, their lightly mottled backs blending perfectly with the rippling water beyond as they feed on beaches.

In spring these birds pass northward leisurely, often remaining in the United States until the first of May; in migrating they fly in lines or in ranks like geese. Their summer homes are in the Arctic regions, being most common upon the mossy barrens about Hudson Bay and Alaska. As the birds run swiftly over this gray vegetation they are hardly noticeable to the untrained eye, so remarkably do their backs blend with the sparse vegetation.

The four eggs are laid in a little hollow, usually on an elevated spot in wet territory. The eggs are large for the size of the bird, but the young come into the world so heavily clad with down that within two weeks they are able to shift for themselves.

AMERICAN GOLDEN PLOVER *

Golden Yellow Rump is one of the names often applied to this most beautiful member of the plover family, which is thus made conspicuous and easily recognizable. It is found everywhere in the United States, from the Atlantic to the Rocky Mountains, but is rare on the Pacific coast south of Alaska. They are seldom found far inland, their natural home being on the seacoast, occasionally frequenting marshy or wet grounds, though as a rule they prefer

AMERICAN GOLDEN PLOVER
½ Life-size

KILLDEER
Aegialitis vociferus
Life size

FROM COL. CHI. ACAD. SCIENCES.

NEST OF THE KILLDEER.
(Aegialitis vocifera.)
Life-size.

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the sandy beach and adjacent flats and uplands. During migration their flight, especially in the spring, is hurried, direct, and in the night, only stopping to rest and feed during the day, returning, it is said, in a more leisurely manner and largely along the seashore. When on the ground, these birds run about on unbended legs, the bodies in a horizontal position, and heads drawn down. While sleeping or resting they usually sit or stand on one leg.

The flight of a flock of Golden Plovers is described by Goss as swift and strong, sweeping over the prairies in a compact, wavy form, at times skimming close to the ground, then high in the air — an ever-changing, circling course, whistling as they go, and on alighting raising their wings until the tips nearly touch, then slowly folding them back, a habit which is quite common with them as they move about the ground.

Plovers eat grasshoppers, beetles, and many forms of insect life; small berries are also a part of their diet.

The eggs are deposited the latter part of May, in a small depression among the moss and dried grass of a small knoll, and at times a slight structure is made of dried grass. Four eggs are laid, of a pale yellowish ground color, with very dark, well-defined umber brown spots scattered profusely over the shell.

KILLDEER

By far the commonest of American plovers, it breeds throughout the entire United States and most of Canada, and winters from the Gulf States to northern South America. A suspicious, restless, noisy, uneasy bird, always on

the alert, it runs and flies rapidly. It inhabits the shores, beaches, and margins of both fresh and salt water.

The food consists of mollusks, insects and their larvæ, largely gathered from the surface of the earth in both damp and dry places.

Plovers are quite cosmopolitan in their range, and this species has been recorded on either hemisphere. Thousands of miles are covered annually in passing from its Northern breeding range to the southern parts of South America. Mariners have reported small groups of plovers, sandpipers, and phalaropes resting upon the ocean hundreds of miles from land.

Cornfields and waste land are the areas occupied by the killdeer while breeding. Two broods are frequently reared in a season; the first setting hatches early in May, and four more eggs are laid late in July.

I have four eggs taken June 21, 1903, from a cornfield within the city limits of Chicago. The eggs are usually deposited in a slight cavity lined with pebbles which harmonize remarkably with the dull blotched egg.

THE RING PLOVER*

In their habits the plovers are usually active; they run and fly with equal facility, and though they rarely attempt to swim, are not altogether unsuccessful in that particular.

The Semipalmated Ring Plover utters a plaintive whistle, and during the nesting season can produce a few connected pleasing notes. The three or four pear-shaped, variegated eggs are deposited in a slight hollow in the

AMERICAN RING PLOVER.
(Aegialitis hiaticula.)
Life size.

BELTED PIPING PLOVER.
(Aegialitis melodia circumcincta.)
7/8 Life-Size.

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A. W. [illegible]

ground, in which a few blades of grass are occasionally placed. Both parents assist in rearing the young. Worms, small quadrupeds, and insects constitute their food. Their flesh is regarded as a delicacy, and they are therefore objects of great attraction to the sportsman, although they often render themselves extremely troublesome by uttering their shrill cry and thus warning their feathered companions of the approach of danger. From this habit they have received the name of "tell-tales."

The American Ring Plover nests as far north as Labrador, and is common on our shores from August to October, after which it migrates southward. Some are stationary in the Southern States. It is often called the ring plover, and has been supposed to be identical with the European ringed plover.

It is one of the commonest of shore birds. It is found along the beaches and is easily identified by the complete neck ring, which upon dark, and dark upon light. Like the sandpipers, the plovers dance along the shore in rhythm with the wavelets, leaving sharp half-webbed footprints on the wet sand. Though usually found along the seashore, Samuels says that on their arrival in spring, small flocks follow the courses of large rivers, like the Connecticut.

PIPING PLOVER

These retiring birds are very local in their range, but occur at irregular intervals along the beaches and on the islands in the Great Lakes region, west to several other large inland bodies. Devil's Lake, North Dakota, and

Lake Manitoba, Canada, are frequented by this retiring shore bird. Along the Atlantic Coast from Long Island to the Gulf of St. Lawrence, the birds breed among the debris not far above high-water mark. They winter from Florida southward.

The dark band across the breast is more distinct in some species; hence, for a time, scientists divided the birds, calling the eastern forms the piping plover, and the birds taken west of Lake Erie were described as the belted piping plover. Further investigation developed the fact that the range had practically nothing to do with the distinctiveness of the band on the breast, and the birds are all now recognized as the piping plover.

May 30, 1911, we plodded through the sand among the scant evergreen and sand dunes overlooking the south shore of Lake Michigan, a desolate country, too clean and barren of plant and animal life to satisfy many birds. Small colonies of bank swallows were perforating the little perpendicular bluffs, and about the old pine stubs the white-bellied swallows hovered, while occasionally a herring gull patrolled the beach, as a scavenger. A metallic peep came from the base of a sand dune, and with field glasses I carefully scanned the vast waste. A piping plover flitted across the beach, circling over the pebbles and driftwood, and squatted in the center of a little elevation just back of a sheltering log. As I approached the sitting bird, she rapidly ran in a wide circle, joining her mate. Both were solicitous and approached me in a distressed attitude, plaintively protesting at my intrusion, by calling in their mellow notes which were so in keeping with the bleak surroundings.

SNOWY PLOVER
(Charadrius nivosus)
Lesson

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The eggs rested in a bare hollow of the white sand, with their four points together, dainty little clay-colored shells, minutely dotted with purple and dark brown.

THE SNOWY PLOVER*

The Snowy Plover is found chiefly west of the Rocky Mountains, and is a constant resident along the California coast. It nests along the sandy beaches of the ocean. Mr. N. S. Goss found it nesting on the salt plains along the Cimarron River in the Indian Territory, the northern limits of which extend into southwestern Kansas. These birds are described as being very much lighter in color than those of California. Four eggs are usually laid, in ground color, pale buff or clay color, with blackish-brown markings. Mr. Cory says the nest is a mere depression in the sand. He says also that the snowy plover is found in winter in many of the Gulf States, and is not uncommon in northwestern Florida.

When the female snowy plover is disturbed on the nest, she will run over the sand with outstretched wings and distressing gait, and endeavor to lead the trespasser away from it. It sometimes utters a peculiar cry, but is usually silent. The food of these birds consists of various minute forms of life. They are similar in actions to the semi-palmated and fully as silent. Indeed, they are rarely heard to utter a note except as the young are approached —when they are very demonstrative—or when suddenly flushed, which, in the nesting seasons, is a very rare thing, as they prefer to escape by running, dodging, and squat-

ting the moment they think they are out of danger, in hopes you will pass without seeing them, as the sandy lands they inhabit closely resemble their plumage in color.

The first discovery of these interesting birds east of Great Salt Lake was in June, 1886. A nest was found which contained three eggs—a full set. It was a mere depression worked out in the sand to fit the body. It was without lining, and had nothing near to shelter or hide it from view.

THE TURNSTONE *

This small plover-like bird is found on the seacoast of nearly all countries; in America, from Greenland and Alaska to Chili and Brazil; more or less common in the interior along the shores of the Great Lakes and larger rivers.

It is generally found in company with flocks of the smaller species of sandpipers, its boldly marked plumage contrasting with surroundings, while the sandpipers mingle with the sands and unless revealed by some abrupt movement can hardly be seen at a little distance.

It is found on smooth, sandy beaches, though more commonly about the base of rocky cliffs and cones. The eggs of horseshoe crabs are its particular delight.

In the nesting season the Turnstone is widely distributed throughout the northern portions of both continents, and wanders southward along the seacoasts of all countries. The nest is a hollow scratched in the earth, and is lined with bits of grass.

The turnstone is known by various names: "Brant

TURNSTONE
(Arenaria interpres.)
½ Life-size

Bird," "Bead Bird," "Horse-foot Snipe," "Sand-runner," "Calico-back," "Chicaric," and "Chickling." The two latter names have reference to its rasping notes, "calico-back" to the variegated plumage of the upper parts.

In summer the adults are oddly pied above with black, white, brown, and chestnut-red, but the red is totally wanting in winter. They differ from the true plovers in the well developed hind toe and the strong claws, but chiefly in the more robust feet, without the trace of web between the toes.

The eggs are greenish-drab in color, spotted, blotched, and dotted irregularly and thickly with yellowish and umber brown. The eggs are two or four, abruptly pyri form in shape.

CHAPTER IX

QUAIL, GROUSE, ETC.

Of the two hundred species of the grouse family, sixty only are found in the new world. With few exceptions, these birds are not migratory. After nesting they gather in covies or bevies—birds of one family, which in some species unite and form large flocks. They are usually resident throughout the year where found.

While usually terrestrial, some use the trees when flushed. Obtaining their food from the ground, they are scratchers, with strong legs and feet and well developed nails. The plumage is of dull colors to harmonize with the grass surroundings. These game birds seek safety by hiding rather than by their rapid flight, which starts with a whirr as they beat the air with their short, stiff wings. Protective coloration is marked.

Of the pigeons and doves, twelve species only are found in North America. Some of these are arboreal, others are terrestrial; some are found in forests, others in prairies; some nest in colonies, others in pairs, but they usually flock after the breeding season. When drinking they do not raise the head as do other birds, but keep the bill immersed until they have finished drinking. The young are born naked, and fed by regurgitation. They are less prolific than other game birds, and yet the wild pigeons were formerly our most numerous bird. The mourning

dove is the most common representative in eastern North America.

BOB-WHITE

The Bob-white, often called quail or partridge, is a resident of eastern and middle North America. The male is handsomely mottled with a shade of soft reddish-brown almost approaching old rose; black and white is conspicuous in various places. In the female, colors are more somber, the white being replaced with buff. The bob-white, like most ground birds, is well protected by color resemblance to the surroundings. The original name quail applies to an Oriental bird mentioned in the Bible.

The clear, distinct call notes of the male give rise to the name "bob-white." The three-syllabled whistle sounds like "Me-bob-white," with particular emphasis on the last syllable. The first syllable is rather faint, and at a distance one hears nothing but the name "bob-white." As a call note during the fall and winter, when the birds are flocking, the syllable "me" is used by the different birds in reorganizing the little band which has become scattered.

The bob-white is resident in the same locality and, for mutual protection, remain in small flocks of from ten to thirty from September until early April.

Their method of "roosting" is practical and picturesque. During the short days of winter, when the snow is in the woods, I have frequently tracked the little fellows to the edge of a brush pile, where the flock is encamped for the night. They cluster in a circle, the tails together, each bird facing in a different direction. This formation con-

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BOB-WHITE.
(Colinus virginianus.)
⅔ Life-size.

serves the heat of the body and gives the best protection from their natural enemies, as there is a guard on the lookout at every point of the compass.

The food of the quails is both insectivorous and vegetable. They destroy great numbers of insects, including chinch bugs, beetles, grasshoppers, the seeds of detrimental weeds and grasses, with some berries and grains. The destructive hessian fly is the natural food for the young, as the mother leads them into a wheatfield if possible. Bob-whites should be fed in bad weather in the winter, especially at time of deep snows or sleet, and should be protected by law throughout the year.

A disturbed flock of bob-white spring from the ground with startling wing-beats, each bird pursuing a different course, alternately flapping their wings and sailing and dropping into cover within a few seconds. They run rapidly after alighting, and soon squat close to the ground in an attempt to escape detection. Assembling call notes then bring the flock together. These birds are not polygamous, like many of our game birds, but remain in pairs through the breeding season.

The nests are placed in fields, orchards, and pastures. A thick clump or tussock of grass with an opening at the side is used by the birds as a nesting site. A little hollow is scratched in the earth, and dry grass is about the only thing that is used in constructing the nest. From eight to twenty pure white eggs are laid. Unlike the eggs of any other partridge or grouse, they are pure white when laid, though dampness frequently stains the shells before the young are hatched.

The birds thrive in cultivated sections and are practically domesticated, but frequently desert a nest of eggs when the sitting bird has been flushed or nest disturbed. Both male and female assist in the duties of incubation, which trait is uncommon among gallinaceous birds. Two broods are frequently reared in a season; the first setting is begun in April, and another nest of eggs may often be found late in June, or as far into the summer as early August. The young run about as soon as hatched.

The Florida bob-white is a sub-species confined to the southeastern part of the United States. It is somewhat darker in plumage. Another variation in plumage, known as the Texas bob-white, may be found inhabiting Texas and New Mexico. These birds are slightly smaller in size, and the peculiar old rose tint found in the plumage of our common bob-white is replaced by gray in this species.

THE MOUNTAIN PARTRIDGE *

This, one of the most beautiful of the partridges, is much larger and handsomer than bob-white, though perhaps not so interesting or attractive as a game bird. The pretty plumes are noticeable in the chick just from the egg, in the form of a little tuft of down, and their growth is gradual until the perfect plumage of the adult is obtained.

The Mountain Partridge is found breeding along the Pacific Coast region from California north into Washington. According to the observer Emerson, it is found nesting in the higher mountain ranges, not below four thousand

MOUNTAIN PARTRIDGE
(Oreortyx pictus).
¼ Life size.

SCALED PARTRIDGE

feet. In some portions of Oregon it is very abundant, and would be sought for by the sportsman with great assiduity, were the regions that it inhabits more accessible. As it is, it is not only hard to find but very difficult to secure when once flushed, hiding easily from the dogs, which become discouraged by repeated unsuccessful efforts to find it.

The mountain partridge deposits its eggs on the ground, on a bed of dead leaves, under a bush or tuft of grass or weeds. Its habits are exceedingly like those of the bob-white. From six to twelve eggs are laid, of a cream color, with a reddish tint. They have been described as miniatures of those of the ruffed grouse, only distinguishable by their smaller size.

This partridge will usually run before the dog, is flushed only with much trouble, and often takes to the trees after being started. California is comparatively destitute of wood except on inaccessible mountain sites and cañons, localities preferred by these birds. It is not known to descend to the valleys.

THE SCALED PARTRIDGE*

Throughout northwestern Mexico and the border of the United States from western Texas to New Mexico and southern Arizona, this handsome partridge, called the Blue Quail, is found in abundance, especially on the dry mesas of the San Pedro slope of the Santa Catalina mountains, up to an altitude of three thousand five hundred feet. In Arizona they are found in flocks of from six to ten, sometimes more, in barren places, miles away from water.

The blue quail, like all the other Western and Southwestern species, prefers to trust to safety to its powers of running, rather than those of flight. The great trouble is to start them from the ground.

A slight depression under a bush serves for the nest of this bird, which is generally lined with a few coarse grasses. Complete sets of eggs have been found as early as April 25. The eggs are extremely thick-shelled, of a buffy-white or cream color. The number laid ranges from eight to sixteen.

The habits of this quail do not differ greatly from those of bob-white, though they have not been fully studied, and the species is of less extensive distribution.

GAMBEL'S PARTRIDGE *

Gambel's Partridge, of which comparatively little is known, is a characteristic game bird of Arizona and New Mexico, of rare beauty, and with habits similar to others of the species, of which there are about two hundred. Mr. W. E. D. Scott found the species distributed throughout the entire Catalina region in Arizona below an altitude of five thousand feet. The bird is also known as the Arizona Quail.

The nest is made in a depression in the ground, sometimes without any lining. From eight to sixteen eggs are laid. They are most beautifully marked on a creamy-white ground with scattered spots and blotches of old gold, and sometimes light drab and chestnut red. In some specimens the gold coloring is so pronounced that it strongly suggests to the imagination that this quail feeds upon the

GAMBEL'S PARTRIDGE
(CALIFORNIA)

MASSINA PARTRIDGE

grains of the precious metal which characterizes its home, and that the pigment is imparted to the eggs.

After the nesting season these birds commonly gather in "coveys" or bevies, usually composed of the members of but one family. As a rule they are terrestrial, but may take to trees when flushed. They are game birds par excellence, and, says Chapman, trusting to the concealment afforded by their dull colors, attempt to avoid detection by hiding rather than by flying. The flight is rapid and accompanied by a startling whirr, caused by the quick strokes of their small, concave, stiff-feathered wings. They roost on the ground, tail to tail, with heads pointing outward, "a bunch of closely huddled forms—a living bomb, whose explosion is scarcely less startling than that of dynamite manufacture."

The partridge is on all hands admitted to be wholly harmless and at times beneficial to the agriculturist. It is an undoubted fact that it thrives with the highest system of cultivation, and the lands that are the most carefully tilled, and bear the greatest quantity of grain and green crops, generally produce the greatest number of partridges.

THE MASSENA PARTRIDGE*

This beautiful species is said to be by far the most gentle and unsuspicious of our quails, and will permit a very close approach by man, showing little or no fear of what most animals know so well to be their most deadly enemy. While feeding they keep close together, and constantly utter a soft clucking note, as though talking to one another.

This species is about the size of the Eastern variety. Its head is ornamented with a beautifully full, soft occipital crest. The head of the male is singularly striped with black and white. The female is smaller and is quite different in color, but may be recognized by the generic characters. The tail is short and full, and the claws very large.

The quail makes a simple nest on the ground, under the edge of some old log, or in the thick grass on the prairie, lined with soft and well-dried grass and a few feathers. From fifteen to twenty-four white eggs are laid. The female sits three weeks. The young brood, as soon as they are fairly out of the shell, leave the nest and seem abundantly strong to follow the parent, though they are no bigger than the end of one's thumb, covered with down. The massena quail is an inhabitant of the Western and Southwestern States.

THE DUSKY GROUSE*

Under various names, as Blue Grouse, Grey Grouse, Mountain Grouse, Pine Grouse, and Fool-hen, this species, which is one of the finest birds of its family is geographically distributed chiefly throughout the wooded and especially the evergreen regions of the Rocky Mountains to the Pacific and northward into British America. Its food and habits are similar to those of the ruffed grouse. Its food consists of insects and the berries and seeds of the pine cone, the leaves of the pines, and the buds of trees. It has also the same habits of budding in the trees during deep snows. In the blue grouse, however, this habit of remaining and feeding in the trees is more decided and constant,

DUSKY GROUSE.
(½ Life-size).

CANADA GROUSE.
(Dendragapus canadensis.)
by Lutescens

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and in winter they will fly from tree to tree, and often there are plenty in the pines, when not a track can be found in the snow.

The size of the dusky grouse is nearly twice that of the ruffed grouse, a full-grown bird weighing from three to four pounds. The feathers are very thick, and it seems fitly dressed to endure the vigor of its habitat, which is in the Rocky Mountain and Sierra Nevada country only, and in the pine forests from five to ten thousand feet above the level of the sea. The latter height is generally about the snow line in these regions. Although the weather in the mountains is often mild and pleasant in winter, and especially healthy and agreeable from the dryness and purity of the atmosphere, yet the cold is sometimes intense.

This grouse nests on the ground, often under shelter of a hollow log or projecting rock, with merely a few pine needles scratched together. From eight to fifteen eggs are laid, of buff or cream color, marked all over with round spots of umber-brown.

THE CANADA GROUSE *

The Canada Grouse, also called the Spruce Partridge, frequents the evergreen forests and swamps and the shrubby areas of British America east of the Rocky Mountains, and in Alaska it is a resident of the Pacific Coast. In its southern flights it seldom passes beyond the latitude of the northern portion of New England and Minnesota.

The Canada grouse, like all the related species, is a bird of rapid flight. The feathers of their small wings are stiff, causing a whirring sound during flight. The male

during the mating season gives a great deal of attention to his appearance. He is quite black in general color and more or less barred with white underneath and above with gray or reddish-brown. The female is not quite as large as the male, and is not as dark in color. Above the eye of the male there is a small area of bare skin, which is a bright vermilion color.

The nest, consisting of loosely arranged blades of grass and a few stalks and twigs, is built by the hen on a slight elevation of ground, usually under the low branches of a spruce tree.

The number of eggs varies greatly. Mr. Ridgway says that they vary in number from nine to sixteen. The eggs also vary greatly in color from a pale, creamy buff through various shades to brownish-buff, and are irregularly spotted with a deeper brown, though occasionally they are spotless.

During the spring and summer months the food of the Canada grouse consists very largely of the berries of plants belonging to the heath family, such as the blueberry, the huckleberry, and the barberry, as well as the tender buds of the spruce. In the winter it feeds almost entirely on these buds and the needle-like leaves of the spruce, the fir, or the tamarack trees. At times they seem to show a preference for certain trees and will nearly strip the foliage from them.

RUFFED GROUSE

Among New England sportsmen the Ruffed Grouse, often called Partridge, is the favorite game bird. The true ruffed grouse occurs in New York, westward through the

RUFFED GROUSE
(Bonasa umbellus)
$\frac{1}{8}$ Life-size

United States to the Rocky Mountains, becoming rather scarce beyond the states bordering the Mississippi. Maine and the White and Green mountain regions northward into Quebec is the home of the Canada ruffed grouse, a subspecies slightly larger. Two other forms occur in the West; the Oregon ruffed grouse inhabits the Pacific Coast and the gray ruffed grouse is found in the Northwest east of the Sierras and within the Rocky Mountain region.

One of the most marvelous examples of adaptability to climatic conditions is shown in the feet of the ruffed grouse. The birds are resident the year around wherever found, and, requiring snow shoes for winter, the toes in fall are equipped with fine, stiff, projecting feathers, extending horizontally on either side of the toes, resembling a double-toothed comb in form. This added foot surface enables the bird to walk with ease on the surface of the snow. The projections drop off at the approach of warm weather.

Birds give vent to their emotion during the mating and breeding season by various vocal sounds, many of which are highly musical. Some species produce what is known as wind music, such as the boom of the nighthawks, caused by the birds swooping earthward from a height, allowing the air to pass through the primaries turned on edge. Of a somewhat similar nature is the "drumming of the grouse"; the bird assumes an attitude similar to a strutting turkey gobbler as from stump or log, with spreading tail, he rapidly beats the sides of his body with the wings, producing a sound like the muffled roll of a drum.

The flight of the partridge is terrific, but of short duration. When flushed by the gunner he seems to have the

faculty of keeping the trunk of a tree between himself and the enemy. If the birds are disturbed by a prowling animal or untrained dog, they take readily to the lower branches of trees, and will permit a person to walk directly under them without attempting to fly. They are often killed from such perch by unsportsmanlike hunters.

Grouse choose a varied diet — insects, spiders, wild berries, and small fruits; also partaking of grains and fresh-sprouted vegetable matter.

The nests are usually a hollow in the leaves at the base of a tree or under a fallen branch. From eight to ten cream-colored eggs are laid. The bird sits extremely close, and one may pass within a few feet of the parent bird without disturbing her. The nests are usually near an opening in the woods or on a small incline overlooking a damp or swampy place. The young are piloted about by the mother as soon as they leave the shell. Protective coloration is marked.

THE WILLOW PTARMIGAN

In summer the Willow Ptarmigan is distributed throughout Arctic America. It breeds abundantly in the valleys of the Rocky Mountains, on the Barren Grounds, and along the Arctic coasts. The winter dress of this beautiful bird is snow white, with the central tail feathers black tipped with white. In summer the head and neck are yellowish-red, back black, barred rather finely with yellowish-brown and chestnut, although the most of the wings and under parts remain white, as in winter. Large numbers of the willow ptarmigan are said in the winter to shelter in

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WILLOW PTARMAGAN

[illegible]

586 WHITE-TAILED PTARMIGAN (Winter plumage)
(Lagopus leucurus)
Life-size

willow thickets and dwarf birches on the banks of lakes and rivers, where they feed on the buds of the smaller shrubs, which forms their principal food at that season. Their favorite resorts in daytime are barren, sandy tracts of land, but they pass the nights in holes in the snow. When pursued by sportsmen or birds of prey they dive in the loose snow and work their way beneath its surface.

The nests are mere depressions in the ground, lined with leaves, hay, and a few feathers from the birds themselves. These birds often occupy the same nest in successive seasons. Ten eggs are usually laid. The eggs have a ground color varying from yellowish-buff to deep chestnut-brown, more or less sprinkled, speckled, spotted, or marbled with rich brown or black.

They are to be distinguished from all other members of the grouse family by the dense feathering of the tarsus and toes, by turning white in winter, and by the possession of only fourteen tail feathers. The bill is very stout and the tail always black. C. C. M.

WHITE-TAILED PTARMIGAN

Ptarmigan inhabit the colder regions of America and Europe. Their occurrence is in western Canada and in the United States, chiefly in the mountainous regions of Colorado, Montana, Idaho, Oregon, and Washington, where they reach an altitude possessing a decidedly boreal climate. During the winters they sometimes descend into the plains and feed upon wild sprouts and berries. The winter plumage is pure white, while in spring the feathers are brown

mottled with gray. Both types of coloration serve to protect the birds from their natural enemies. They range in comparatively open places, and in winter their immaculate feathers enable the birds to move about over the snow without attracting the attention of their natural enemies, eagles, owls, foxes, and other carnivorous creatures. Their summer homes on the mountain ranges are often above the timber line, where nothing but a sparse growth of moss exists. The birds at this season of the year are very difficult to find, owing to the similarity of their plumage to the surrounding rocks and vegetation.

Ptarmigan are seldom hunted with dog or gun, and consequently are approachable, often exhibiting no more fear of a man than does the ordinary barnyard fowl. The white-tailed ptarmigan inhabits the Rocky Mountain and Sierra Nevada ranges from Colorado northward to Alberta and British Columbia.

Naturalists have not found it possible to make many extensive observations of this interesting bird during the breeding season, in June, because it nests in a region subject to violent weather changes during the early summer, making a camping outfit imperative to provide against violent storms.

PRAIRIE CHICKEN

The Prairie Chicken, or Prairie Hen, was formerly one of the most common birds on the plains and prairies of the middle and western United States and Canada. In Minnesota and Manitoba this famous bird is found in the same districts as its lighter-plumaged relative, the sharp-tailed

PRAIRIE HEN
[illegible]

grouse. Certain portions of Oklahoma, Kansas, and Texas are the haunts of the rare and smaller form, known as the lesser prairie chicken.

The prairie chicken, or pinnated grouse, like the turkeys, are polygamous. In August the young and old congregate in droves, numbering from a dozen to upwards of a hundred. Over the grain and stubble fields and into plowed ground these flocks forage from early fall until the first spring thaws. In March and early April they begin to disband, and the males may then be heard "booming" at sunrise from some elevated spot exposed on all sides. The cocks have a small patch of loose skin on either side of the neck, which they are capable of inflating with air until these bare spots swell to the size of a large crabapple, resembling little oranges. While the males are filling and emptying these pouches the head is lowered and the wings partially spread and drooping. Several cocks assume this posture simultaneously, each facing the others and booming alternately. At this juncture it is not an unfamiliar sight to see a hen fly directly in their midst, when a battle royal ensues. Perhaps the madam has just left a setting of nine to eighteen eggs, but she soon leaves the rivals to their comical antics.

The nest is usually prepared in a sheltered spot, under a clump of dead weeds or a bunch of weather-beaten grass, or at the base of a small bush or shrub. The parent scratches a slight hollow in the earth, lining it with dead vegetation and a few feathers from her own breast. The first egg is laid sometimes as early as April 20th, but usually during the forepart of May. The period of incubation is three

weeks, and the young follow the mother as soon as hatched.

The prairie chicken has many natural enemies. Snakes, weasels, minks, coyotes, rats, and crows are among the many which tend to decrease the broods by destroying the eggs and devouring the chicks. What could be a more tempting morsel for the horned owl or a prairie falcon? Wet, cold springs retard the nesting, and result frequently in flooding the nests. The prairie chicken usually deserts a disturbed nest, and now too few good nesting sites remain. Fortunately, many states have protected these birds for some years by not allowing any shooting. As a result in many sections this magnificent bird, so beneficial to the farmer, is occurring in something like its former abundance. They are hardy birds, residing the year round in the same locality unless driven to other sections by persecution.

Their food is principally grain, berries, grasshoppers, beetles, and willow buds. Their value to the farmer is almost as important as that of the bob-white and meadow lark, all of which thrive in cultivated sections, where the agriculturist must realize that the day is not far distant when he must choose between the grasshopper and other pests and these resident game birds, which thrive if they are afforded protection from the gunner.

THE LESSER PRAIRIE HEN *

Extending over the great plains from western and probably southern Texas northward through Oklahoma to Kansas is said to be the habitation of the Lesser Prairie Hen, though it is not fully known. It inhabits the fertile prairies,

LESSER PRAIRIE HEN.
(Tympanuchus pallidicinctus).
¼ Life-size.

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seldom frequenting the timbered lands, except during sleety storms or when the ground is covered with snow. Its flesh is dark and it is not very highly esteemed as a table bird.

The habits of these birds are similar to those of the prairie hen. During the early breeding season they feed upon grasshoppers, crickets, and other forms of insect life, but afterwards upon cultivated grains gleaned from the stubble in autumn and the cornfields in winter. They are also fond of tender buds, berries, and fruits. When flushed these birds rise from the ground with a less whirring sound than the ruffed grouse or bob-white, and their flight is not as swift but more protracted and with less apparent effort, flapping and sailing along, often to the distance of a mile or more. In the fall the birds come together and remain in flocks until the mating season of spring.

The nest of the prairie hen is placed on the ground, in the thick prairie grass, and at the foot of bushes when the earth is barren; a hollow is scratched in the soil and sparingly lined with grasses and a few feathers. There are from eight to twelve eggs, tawny brown, sometimes with an olive hue and occasionally sprinkled with brown.

During the years 1869 and 1870, while the writer was living in southwestern Kansas, which was then the far West, prairie chickens, as they were called there, were so numerous that they were rarely used for food by the inhabitants, and, as there was then no readily accessible market, the birds were slaughtered for wanton sport. They have become well-nigh exterminated in many localities where they were formerly very abundant, owing to the immense numbers that hunters have shot to be sold in the eastern markets.

PRAIRIE SHARP-TAILED GROUSE

The Sharp-tailed Grouse, in this form, is found chiefly in the Dakotas, Minnesota, and western Wisconsin. Occasionally they have been recorded in northern Illinois. It is partially migratory, living in prairies in summer and wooded regions in winter.

The true form of the sharp-tailed grouse is a more northerly species, inhabiting the west and central portions of Manitoba and Alberta. In the northwestern section of the United States, from Montana to the Pacific, including Washington and Oregon, the Columbian sharp-tailed grouse, another species, occurs. The sharp-tailed grouse may be met with in the same sections occupied by our common prairie chicken, but may be readily distinguished from it by the feathered legs and toes. The Columbian sharp-tailed is fond of wild fruit, so that during the fall they move from the prairie lands into the cranberry marshes to feed.

Prairie sharp-tailed grouse are considerably lighter in color than the prairie chicken, and the under parts are without the barred effect. In winter they hide in the deep snow and tunnel beneath the crust to feed on the sprouts of willows, larches, and aspens. Like the ruffed grouse, it frequently roosts in trees, but during the spring and summer months it remains on the ground.

From seven to twelve eggs are laid in May or early in June. Some sets bear a close resemblance to those of the prairie chicken and are dark olive-green. Others are gray-

PRAIRIE SHARP-TAILED GROUSE.

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WILD TURKEY.

½ Life size.

ish-drab sparingly covered with markings of pale brown. I found this bird breeding in the rolling prairies of western Minnesota during the first half of June.

WILD TURKEY

This great game bird is nearing extinction in many sections of the United States. Fifty years ago it was of common occurrence from the Atlantic to Kansas and Missouri, while today few states can claim this noble bird as a resident. A sub-species, the Florida wild turkey, haunts the almost inaccessible portions of Florida, where shrubbery and wild fruits prevail. In the Southwest other varieties still range in the mountainous regions of Missouri, Arkansas, Oklahoma, Texas, New Mexico, and Arizona.

In the Aransas Pass region of southwestern Texas I encountered several small flocks of the Mexican wild turkey in February and March, when the gobblers were noisy and aggressive. The Mexicans sometimes use dogs in hunting this gallinaceous fowl; when pursued down hill it does not seem to occur to these birds that escape is possible by flight only and as a result they are caught. I have never known a dog to capture one when the turkey was running up a hill, though turkeys seldom take refuge from a dog by flight.

Large pecan trees in the mountains, along little streams, are favorite roosting-places for these wild turkeys, which frequent the same tree nightly. Before sunrise the males of these polygamous birds may be seen strutting through the fields with drooping wings, gobbling incessantly and chal-

lenging every other gobbler. I was fortunate in discovering a nest under a fallen tree, on a little knoll between two gullies. The bird used a large quantity of dead leaves and feathers in constructing the nest, so that it was suggestive of a wild duck's nest. It contained thirteen eggs when found. In shape and markings they resemble those of the domestic turkey, but are slightly paler and smaller. The nest is generally abandoned if the eggs are touched.

PASSENGER PIGEON

The former range of the Passenger Pigeon, or Wild Pigeon, was eastern North America northward to Hudson Bay.

"No more marvelous tales have been handed down to us from a remote past than those which our own fathers tell concerning the former abundance of the wild pigeon during its migrations and in its breeding haunts. During their passage the sun was darkened, the beating of their wings was like thunder, and their steady oncoming like the continuous roar of Niagara. Where they roosted great branches, and even trees two feet in diameter, were broken down beneath their weight, and where they bred a hundred square miles of timber was weighted down with their nests. When they lighted on the ground in vast swarms to feed, the rear birds flew over the flock to alight in front, looking like a rolling surf wave of blue.

"Until the middle of the last century the species enjoyed a general distribution throughout eastern North America, and was found scatteringly to the Pacific Coast. The birds

were, however, rather irregular in their habits, and the center of abundance within historic times was in the North Central States. They were best known from Kentucky, through the accounts of Wilson and Audubon, and in Michigan, where the birds had their last known stronghold, and where the last considerable flight was observed, in 1888. In Kentucky they bred and occasionally wintered in such numbers that Wilson once computed a single flight at upwards of two billions. Since the pigeons appeared absolutely countless, their destruction was carried forward upon a colossal scale. Men gathered them with nets and knocked them down with poles, or felled trees to secure the fat squabs. At Pentwater, Michigan, people lined the cliffs and beat them down with sticks as they passed the crest of the ridge, until the ground was heaped with countless thousands. Powder and shot were deemed unnecessary, although fifty-nine pigeons are reported as killed by one discharge of a shotgun.

"In 1878 Prof. H. B. Roney wrote in the Chicago *Field* (Vol. X, pp. 345-347):

"'The nesting area situated near Petoskey included not less than 150,000 acres within its limits. The number of the dead birds sent by rail was estimated at 12,500 daily, or 1,500,000 for the summer, besides 80,352 live birds; and an equal number was sent by water. We have,' says the writer, 'adding the thousands of dead and wounded ones not secured, and the myriads of squabs left dead in the nest, at the lowest possible estimate, a grand total of 1,000,000,000 pigeons sacrificed to mammon during the nesting of 1878.'

"It is evident that such wholesale slaughter could not go on forever. The extraordinary flights suddenly ceased during the '80s. Since that time, 'What has become of the passenger pigeon?' has been the puzzling question. It is known that the birds still breed by single pairs, to some extent at least; but doubtless the passenger pigeons are gone — gone irretrievably, after the manner of the bison — lost in the maw of human greed.

"One or two white eggs in a rude platform of sticks was laid on every available branch." (Adapted from Dawson's *Birds of Ohio.*)

MOURNING DOVE

The Mourning Dove ranges throughout the United States and southern Canada, breeding from Cuba north to Ontario and Quebec.

Since the extinction of the passenger pigeon, the mourning or turtle dove is the only representative of the family we have in eastern North America north of Florida and Louisiana. The bird's rapid and irregular flight is accompanied by a whistling of the wings. Disturbed while nesting, the birds alternately flutter and hop until they have misled the trespasser. Mourning doves are gregarious when migrating, and again flock soon after the young leave the nest. When gregarious they visit cornfields, consequently their flesh is very palatable, and farmers kill them in great numbers in open season as game and because of their destruction of grain. Fond of salt, they are found where stock is salted.

MOURNING DOVE
(Zenaidura macroura)
[illegible]

RING NECKED DOVE.
½ Life-size.

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The love song has a pathetic tone which gives the name "mourning." Orchards, groves, and roadsides grown up with shrubbery are favorite nesting sites. The young are fed after the manner of the albatross, petrels, and hummingbirds, as the predigested matter is introduced into the crop of the young by regurgitation.

Two white eggs are deposited in a loosely constructed nest of sticks, near the ground in the East, sometimes on the ground in the West.

RING-NECKED DOVE *

The popular names for this favorite bird are turtle dove, common dove, and Carolina dove. It is an inhabitant of all of temperate North America to a little north of the United States boundary, south through Mexico and Central America to the Isthmus of Panama, Cuba, Jamaica, and some other West Indian islands. The species have even been known to winter as far north as Canada, Mr. John J. Morley, of Windsor, Ontario, informing Prof. Baird that he had seen considerable numbers near that place on the 6th of December, 1878, and that he had on other occasions seen it in various places, from three to twelve at a time. It is a common summer resident in Illinois. The majority arrive the last of March or first of April, and depart by the middle of October. In many places it becomes partly domesticated, breeding in the trees in the yard and showing but little fear when approached.